

En

PES 3 A 90 D 10/3 RS 2640 RSV 325-1150 A 8 B 2157 L
Komb.-Nr. 0 400 863 006
1 - 3 - 2 je 120° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 82
KHD
company F 3 L 913 G
engine: 37 kW (50 PS) -1
bei 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6 mm (from SDC)
(2,45-2,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	10,8+0,1 2	6,9 - 7,0 3	0,3(0,45) 4			
325	8,9-9,1	1,6 - 2,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-load stop		6 Rotational-speed initial	3a Fuel delivery characteristics		Starting fuel delivery idle		5a Idle stop	
rev/min	cm ³ /1000 strokes	Note: changed to rev/min	rev/min	cm ³ /1000 strokes	rev/min	mm RW	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	68,5-69,5 (66,5-71,5)	1190-1200*	300	60,0-62,0 (58,0-64,0)	100	11,1-11,3	-	-

Checking values in brackets

Digitized by srujanika@gmail.com

6.33

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 EIC 2,9 c 1

2. Edition

En

PES 3 A 90 D 320 RS 2626 RSV 300-1050 A 1 B 2171 R

supersedes 9.82

company: Eicher

engine: EDL 3-1

40 kW (54 PS)

1 - 3 - 2 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Komb.-Nr. 0 400 873 030

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 - 2,3
 (2,15-2,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	11,4+0,1	7,3 - 7,4	0,2(0,45)	300	9,7-9,9	11,4+0,1
		3,3 - 3,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	x = 5,0	-	-	ca. 22	300	9,3	1050	11,4+0,1
							100	min. 19,5	500	12,0+0,1
(5)	10,4	1090-1100					300	9,7-9,9	890	11,7+0,2
	4,0	1145-1175					445-505	= 2,0		
	1310	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full load stop		(6) Rotational-speed limit		(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1050	73,0-74,0 (71,0-76,0)	1090-1100*	500	66,5-69,5 (64,5-71,5)	100	78,0-88,0 bei 14,0 - 14,6 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.33

BOSCH

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der Robert Bosch GmbH, Stuttgart-Bericht Nr. 001 Printed in the Federal Republic of Germany
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A Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 EIC 3,9 c

2. Edition

En

PES 4 A 90 D 320 RS 2634 RSV 300-1025 A 1 B 2153 R

supersedes 10,82

1 - 2 - 4 - 3 je $90^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

company: Eicher

Komb.-Nr. 0 400 874 233

engine: EDL 4-2

65 kW (88 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2 - 2,3$
 $(2,15-2,35)$ mm (from BDC); RW=9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1025	12,6+0,1	8,1 - 8,2	0,2(0,45)			
	10,9+0,2	4,4 - 4,9				

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Degree of deflection of control lever	Control rod travel rev/min	mm	Control rod travel rev/min	mm
loose	800	0,3 - 1,0	-	-	-	ca. 16	300	10,5	1025	12,6+0,
	x = 2,0								500	13,2+0,
ca. 46	11,6	1065-1075					300	10,9-11,1	880	12,9+0,2
(5)	4,0	1095-1125					395-455=2,0			
	1255	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1025	81,0-82,0 (79,0-84,0)	1065-1075*	750	83,5-86,5 (31,5-38,5)	100	101,0-111,0 (98,0-114,0)	-	-
			500	77,0-79,0 (75,0-81,0)		= 17,7-18,5 mm RW		

Checking values in brackets

* 1 mm less control rod travel than cor. 2

2.33

BOSCH

Geschäftsbericht AM Kundendienst 4/2-8, 49300 Stuttgart
by Robert Bosch GmbH 0 7119 Stuttgart, Germany Printed in the Federal Republic of Germany

Testoil-ISO 4113

A3

A3

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 3,8 g 2

3. Edition

Ea

Testoil-ISO 4113

PES 4 A 90 D 410 RS 2294
Komb.-Nr. 0 400 844 047

RQV 300-1425 AB 740 L

superseed 82
company Daimler-Benz
engine: OM 314
62,5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pre-take $2,15-2,25$
($2,1 - 2,3$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,7-9,8	6,3 - 6,4	0,3(0,45)			
	7,5-7,7	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Intermediate rated speed Degree of deflection of control lever 4	Control rod travel mm 5	Lower rated speed Degree of deflection of control lever 7	Control rod travel mm 8	Sliding sleeve travel rev/min 10	mm 11
max.	1470	15,2-17,8	-	-	-	ca.14	100
ca.61	8,7 4,0 1700	1455-1465 1550-1580 0 - 1,0	-	-	-	ca.14	min.9,1 300 7,5-7,7 370-520
						250 640 1030 1425	0,7-1,0 3,2-3,6 5,5-5,7 8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 1	Rotational-speed limitation intermediate speed 2	Fuel delivery characteristics high idle speed 3	Starting fuel delivery idle switching point 4	Torque-control travel Control rod travel 5
1400	62,5 - 63,5 (60,5 - 65,5)	1455-1465 *	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 d

2. Edition

En

PES 6 A 90 D 410 RS 2633 RQV 300-1500 AB 1165 L
Komb.-Nr. 0 400 846 494

supersedes 82
company Fiat
engine: 8060.04.662

Testoil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

^{2,2 - 2,3}
Port closing at prestroke (2,15-2,35) mm (from SDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	9,1-9,2	5,3 - 5,4	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever Control rod travel rev/min	Control rod travel rev/min	Intermediate rated speed Degree of deflection of control lever Control rod travel rev/min mm	Lower rated speed Degree of deflection of control lever Control rod travel rev/min mm	Sliding sleeve travel rev/min mm
1	2	3	4	5
max.	1530	15,2-17,8	-	100 min. 9,7 300 8,2-8,4 600-660 = 2,0 800 max. 1,0
ca. 59	8,1 4,0 1800	1540-1550 1645-1675 0 - 1,0	ca. 17 330-430	250 1,1-1,3 670 4,5-4,8 1080 6,0-6,2 1500 8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	Rotational-speed limitation intermediate speed rev/min	Fuel delivery characteristics high idle speed rev/min cm³/1000 strokes	Starting fuel delivery idle switching point rev/min cm³/1000 strokes	Torque-control travel Control rod travel rev/min mm	
1	2	3	4	5	
1500	52,5-53,5 (50,5-55,5)	1540-1550*	500 38,5-40,5 (36,5-42,5)	100 68,0-78,0	1500 9,1+0,1 500 9,6+0,1 930 9,4+0,2 1130 9,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.33

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A5

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 d 1

2. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1026 DL
 Komb.-Nr. 0 400 649 201
 1-10- 9- 4- 3- 6- 5- 8- 7- 2
 0-27-72-99-144-171-216-243-288-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 11.82

company: KHD

engine: F 10 L 413 F
 235 kW (320 PS)
 bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1
(1,95-2,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	9,1-9,3	0,3(0,6)			
300	6,8-7,0	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1295	15,2-17,8	-	-	-	ca. 12	100 min. 7,5	250	0,5-0,8	
ca. 66	9,3 4,0 1500	1290-1300 1340-1370 0-1,0				330-400	300 5,9-6,1 550-680=2,0 850 max. 1,0	580 920 1250	2,8-3,1 4,6-4,9 7,6	
(3)										

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) rev/min 1		Rotational-speed limitation intermediate speed rev/min 3	Fuel delivery characteristics high idle speed rev/min 4		Starting fuel delivery idle switching point rev/min 6		Torque-control travel Control rod travel rev/min 8
	cm³/1000 strokes 2		cm³/1000 strokes 5	cm³/1000 strokes 5	cm³/1000 strokes 7	rev/min 8	rev/min 9
1250	91,0-93,0 (89,0-95,0)	1290-1300*	1000 700	90,5-93,5 91,0-94,0 (89,0-96,0)	14,3-15,3 mm RW	1250 1000 700 400	10,3+0, 10,3+0,2 10,7+0, 10,7+0,

Checking values in brackets

* 1 mm less control rod travel than cat. 2

6.83

A6

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②

Test Specifications Fuel Injection Pumps ② and Governors

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WPP 001/4 MB 8,3 c 4

3. Edition

En

PE 6 A 90 D 410 RS 2124

RQ 300/1250 AB 812 DL

Komb.-Nr. 0 400 646 199

supersedes 3.83

company: Daimler-Benz

engine: OM 360

141 kW (192 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
 (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,2+0,1	8,6 - 8,7	0,3 (0,45)			
300	6,3-6,5	1,2 - 1,8	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	15,6-16,4	700	16,0	9,2 4,0	1295-1310 1345-1375	300	5,6	100 300 360-400 = 2,0 500	min.7,9 5,5-5,7 max.1,0	-	-

Torque-control travel

on flywheel assembly dimension a =

mm

1295-1310 min⁻¹

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed		6
		rev/min	cm³/1000 strokes	3	rev/min	cm³/1000 strokes	5	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	7	8	9	10
1250	86,0-87,0 (84,0-89,0)	-	800	80,0-83,0 (78,0-85,0)	100	19,0-21,0 mm RW			

Checking values in brackets

6.83

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BOSCH

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② **Test Specifications
Fuel Injection Pumps ②
and Governors**

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WPP 001/4 MB 5,7 y

2. Edition

En

PES 6 A 90 D 410 RS 2293 RQ 900 AB 1079 L
Komb.-Nr. 0 400 846 446

supersedes 10.82
company: Daimler-Benz
engine: OM 352 A
82 kW (111 PS)

Testoil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	10,8+0,1	6,9 - 7,0	0,3(0,45)			
300	5,9-6,1	0,9 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel mm	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
-	-	-	-	9,8 4,0 1000	900-905 941-956 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
850	69,0-70,0 (67,0-72,0)	-	-	-	-	100	73,0-83,0 bei 14,6-15,0 mm RW

Checking values in brackets

6.33

PE 6 A 95 D 410 LS 2621 RQ 350/1250 AB 1148 L

$$0 -75 \text{--} 120\text{--}195\text{--}240\text{--}315^\circ \pm 0,5^\circ (\pm 0,75^\circ)$$

Komb.-Nr. O 400 646 267

superseed 9.82

Company: KHD

company: 10.3
F6L413F

engine: 125 kW (170 PS)
bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 (1.95 - 2.15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	9,6-9,7	8,3 - 8,5	0,3 (0,6)			
350	6,9-7,1	1,6 - 2,2	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation						Idle speed regulation						Torque control		
PRG check		Setting point		Test specifications				Setting point		Test specifications				Control rod travel		
		Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	rev/min	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
550	19,2-20,8	550	20,0	8,6	1295-1310	350	7,0	100	min. 8,5	1250	9,6- 9,7	VH= 46°	350	6,9-7,1	550	10,1-10,2
				4,0	1325-1355				410-450=2,0	910	9,9-10,1		450	max. 1,0	990	9,6- 9,9

Torque-control travel
on flywheel assembly dimension e =

= 0.25

12

1 mm less control
and travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		(2)	Control rod stop	(3a)	Fuel delivery characteristics	(3b)	Starting fuel delivery idle speed	(6) Control rod travel
rev/min ?	cm ³ /1000 strokes		rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1250	82,5 - 84,5 (80,5 - 86,5)		600		800	85,0 - 88,0 (83,0 - 90,0)	100	119,0 - 129,0
					1000	84,0-87,0 (82,0-89,0)		

Checking values in brackets

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 MB 3,8 n5

2. .Edition

En

Testoil-ISO 4113

PES 4 A 90 D 410 RS 2570

RSV 350-1200 A 2 B 1139 L superseded 10.80

Komb.-Nr. 0 400 874 227
1 - 3 - 4 - 2 je $90^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

RSV 350-1200 A 2 B 1139-1L company Daimler-Benz

engine OM 314

48 kW (65 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (2,20-2,40)

Port closing at prestroke 2,25-2,35

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,4+0,1	5,3 - 5,4	0,3(0,25)			
350	8,9-9,1	0,9 - 1,3	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
loose	800	0,3-1,0		350	8,5	1200 10,4-10,5
	X = 3,5			100	min. 19,0	600 11,7-11,9
ca. 46 2a	1240-1250 = 9,4			350	8,9-9,1	1050 10,6-10,9
	1310-1340 = 4,0			540-600	=2,0	
	1450 = 0,3 - 1,7					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note: changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
1200	52,5 - 53,5 (50,5 - 55,5)	1240-1250*	500	48,0 - 50,0 (45,5 - 52,5)		100	78,0-88,0 (75,0-91,0) -17,0-17,4 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

2. 33

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Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps 1A and Governors

40

KPP 001/4 SCL 7,4 b

2. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2614

Komb.-Nr. 0 400 876 303

RSV 325-1100 A 1 B 2111 L

supersedes 11.82

company Schlueter

engine SDMT 110 W 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,75-1,95)
1,80-1,90

mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,6+0,1	10,8 - 11,0	0,3(0,6)			
325	7,9-8,1	1,2 - 1,8	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	Control rod travel mm rev/min	
1	2	3	4	5	6	7	8	9	10	
loose	800	0,3-1,0	-	-	-	ca. 23	325	7,5	1100	12,6-12,7
ca. 59	1140-1150 = 11,6	X = 5,0					100	min. 19,5	785	12,7-12,9
2a	1220-1250 = 4,0						325	7,4-7,6	500	13,0-13,1
	1385 = 0,3-1,7						550-610 = 2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
1100	108,0 - 110,0 (106,0 - 112,0)	1140-1150*	500	102,5 - 105,5 (100,5 - 107,5)		100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.33

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 VAL 4,4 a

2. Edition

En

PES 4 A 95 D 320 RS 2654
Komb.-Nr. 0 400 874 236

1-2-4-3 je $90^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

RSV 325-1050 A 2 B 2178 R

supersedes 11.82
company Valmet
engine 411 DS 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **2,5-2,6**
(**2,45-2,65**) mm (from BDC)

Rotational speed rev/min 1	Cont. of rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,6+0,1	8,5-8,7	0,3 (0,6)			
	7,2-7,4	1,2-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in **1**

B. Governor Settings

1 Upper rated speed rev/min	Intermediate rated speed			4 Lower rated speed rev/min	3 Torque control rev/min
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	Control rod travel mm 8	Control rod travel mm 10
loose	800	0,3-1,0	ca. 31	325	1050
	x = 6,5	- - -		100 min. 19,0	500 11,2-11,3
ca. 53 2a	9,6	1090-1100		325 6,7-6,9	900 10,8-11,1
	4,0	1185-1215		485-545=2,0	
	1390	0,3-1,7		775 max. 1,0	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat Note changed to 1 rev/min 3	3a Fuel delivery characteristics rev/min 4 cm³/1000 strokes 5	Starting fuel delivery Idle rev/min 6 cm³/1000 strokes 7	5 Idle stop rev/min 8	4a Control rod travel mm 9
rev/min 1 cm³/1000 strokes 2		500 79,5-82,5 (77,5-84,5) 750 39,5-91,5 (37,5-93,5)	100 156,5-166,5 = 19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than co. 2

6.33

BOSCH

Gesamtübersicht AH Kundendienst 412 Ausfertigung
360 by Robert Bosch GmbH Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
importé en République Fédérale d'Allemagne par Robert Bosch GmbH

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 i

4. Edition

En

PE 6 P 110 A 720 RS 3034

RQV 200-1200 PA 554

Komb.-Nr. 0 401 846 733

supersedes 83

company Scania

engine: DS 805

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4

(3,25-3,45)

mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,3+0,1	12,1-12,3	0,5(0,8)			2,5+0,1
	5,3-5,5	1,5-1,9	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm 3	Intermediate rated speed			Lower rated speed Degree of deflection of control lever 7	rev/min Control rod travel mm 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	mm 11
			Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6					
max.	1200	15,2-17,8	-	-	-	ca. 16	100	min. 6,8	150	0,5-0,8
ca. 64	11,3 4,0 1550	1240-1250 1385-1415 0-1,0					225	5,3-5,5	500	3,8-4,5
							410-470 = 2,0		850	5,9-6,1
									1200	8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 2b	Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel 5
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	Control rod travel mm 8
LDA 700	0,9 bar 121,0-123,0 (119,0-125,0)	1240-1250*	LDA 1200	0,9 bar 127,5-130,5 (125,0-133,0)	100	190,0-240,0 =20,0-21,0 mm RW	-
			LDA 500	0 bar 85,0-89,0 (83,0-91,0)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbericht KH. Kundendienst. Kfz-Ausrüstung.
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Imprimé en République Fédérative d'Allemagne par Robert Bosch GmbH

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing increasing pressure - in bar gauge pressure

SCA 8,0 i -2-

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel: mm (1)	diminution difference
PE 6 P..RS 3034 +RQV.. PA 554	0,90	0 0,33 0,22	12,3-12,4 10,9-11,0 12,0-12,1 11,2-11,4	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 r6
2. Edition

PE 6 P 110 A 720 RS 3040 ROV 200-1000 PA 555-1
Komb.-Nr. 0 401 846 763

supersedes 83
company Scania
engine DS 11

EP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,3-3,4) mm (from BDC)= RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,6+0,	16,8-17,0	0,6 (0,8)			3,3 [±] 0,1 (3,0-3,5)
	4,4-4,6	1,7-2,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	6	7	8	10	11
max.	1050	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 60	12,6	1040-1050					225	4,4-4,6	430	3,1-3,6
	4,0	1155-1185					310-370=2,0		720	5,1-5,4
	1300	0 - 1,0							1000	7,9

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	rev/min 5	cm³/1000 strokes 6	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 168,0-170,0 (166,0-172,0)	1040-1050*	LDA 1000	0,9 bar 170,5-173,5 (168,0-176,0)	100	240,0-290,0 =RW 20,0- 21,0 mm	-	-	-
			LDA 500	0 bar 133,0-137,0 (131,0-139,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2
6 .83

BOSCH

Geschäftsbericht KM Kundendienst Kfz-Ausstattung.
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Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

SCA 11,0 r 6

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P.. RS 3040 + ROV.. PA 555-1	0,42	0,90 0 0,29	13,2-13,3 13,6-13,7 12,0-12,1 12,3-12,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

HPP 001/4 SCA 14,0c

12. Edition

En

Testoil-ISO 4113

PE 8 P 110 A 920/4 LS 3020 ROV 250 - 1100 PA 306 R
Komb.-Nr. 0 401 848 701

supersedes 81
company: Scania
engine: DS 1402

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,30-3,40
(3,25-3,45) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve)
1100	13,5+0,1	16,2 - 16,4	0,6(0,8)			3,3 ± 0,1
225	4,4 - 4,6	1,5 - 1,9	0,2(0,4)			(max. 3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
max.	1100	15,2-17,8						ca. 10	100	min. 5,9	225
ca. 60	12,5 4,0 1400	1140-1150 1270-1300 0 - 1,0						ca. 10	250 350-410=2,0	4,4-4,6	365

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	Control rod travel mm
LDA 1100	0,7 bar 162,0-164,0 (160,0-166,0)	1140-1150 *	LDA 600	0,7 bar 165,5-168,5 (163,0-171,0)	100	240,0-290,0		
			LDA 500	0 bar 127,0-131,0 (125,0-133,0)	225	15,0-19,0 Dispersion max. 2(4)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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A17

A17

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,0c

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference
		Gauge pressure =	bar	
PE 8 P..LS 3020 + RQV..PA 306 R	0,70	0		13,5 - 13,6
		0,45		12,1 - 12,2
		0,32		13,1 - 13,2
				12,2 - 12,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 s

3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 720 RS3065 RQV 250-1100 PA468R
Komb.-Nr. 0 401 846 721

supersedes 10.81
company: Scania
engine: D 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 3,30-3,40 (3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	12,5+0,1	13,5 - 13,7	0,5(0,8)			2,5+0,1 (max. 2,2-2,9)
	6,2-6,4	1,5 - 1,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
max.	1100	15,2-17,8	-	-	-	ca. 10	100	min. 7,3	200	0,3-1,3
ca. 61	11,5 4,0 1400	1140-1150 1250-1280 0 - 1,0					225	5,8-6,0 345-405=2,0	700 1120	4,8-5,2 8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1100	135,0-137,0 (133,0-139,0)	1140-1150*	600	132,5-135,5 (130,0-138,0)	100 225	190,0-240,0 15 - 19

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 11,0 r 1

4. Edition

En

supersedes 1.83

company: Scania

engine: DS 11

Testoil-ISO 4113

PE 6 P 110 A 720 RS3040 RQ 250/1100 PA411R
Komb.-Nr. 0 401 846 717

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,30-3,40
(3,25-3,45) mm (from BDC): RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	1	13,0+0,1	15,7 - 15,9	0,6(0,8)		2,5+0,1** (max.2,2-2,9)
	2	4,4-4,6	1,7 - 2,1		0,2(0,4)	

Adjust the fuel delivery from each outlet according to the values in

** In the case of greater dispersion alter the delivery-valve spring
pre-tension accordingly.**B. Governor Settings**

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
700	15,6-16,4	700	16,0	12,0 4,0 1350	1145-1160 1230-1260 0 - 1,0	250	4,5	100 250 300 - 360 = 2,0	min.5,9 4,4-4,6	-	-

Torque-control travel
on flyweight assembly dimension a = - mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		6 Control rod travel
		rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	6	cm³/1000 strokes/mm	
LDA 1100		0,9 157,0 - 159,0 (155,0 - 161,0)			LDA 600	0,9 161,5 - 164,5 (159,0 - 167,0)	100	240,0 - 290,0	
					LDA 500	0 126,0 - 130,0 (124,0 - 132,0)	225	17 - 21 **	

Checking values in brackets

5.33

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

SCA11,0r1

- 2 -

Pump/governor	Setting Gauge pressure =	Measurement bar	Control rod travel mm	diminution difference (1)
PE 6 P..RS 3040 +RQ..PA 411 R	0,37	0,90	12,7-12,8	
		0	13,0-13,1	
		0,25	11,7-11,8	
			11,8-12,0	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 40,5 c 2

2. Edition

En

PE 8 P 120 A 920/5 RS 293 R SUV 300-1000 P O A 352

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 -75 -90 -120-210-225-315-345° +0,5° (-0,75°)

supersedes 8.80
KHD
company BA 16 M 816
engine Komb.-Nr. 0 401 878 104

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1
Port closing at prestroke (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	29,5-29,9 (29,2-30,2)	0,5 (0,9)			
300	6,0-6,2	2,0-2,6	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	
1	2	3	7	8	10	
lose	800 0,3-1,0 $x = 1,75$	- - -	ca. 21	300 5,6 300 6,0-6,2 325-385=2,0	1000 280 400	14,9-15,0 16,2-16,8 14,9-15,0
ca. 65 (2a)	13,9 1040-1050 4,0 1065-1095 1190 0,3-1,7					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min	2	3	4	5	6	7	8	9
LDA	0,7 bar	1040-1050*	-	-		100	19,5-21,0 mm RW	-	-
Carry out adjustment	on engine								

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbericht KH Kundendienst Kfz Ausrüstung
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Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

5.33

Testoil-ISO 4113

A22

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
 increasing

KHD 40,5 c 2

Pump/governor	Setting	Measurement		Control rod travel- diminution difference (1)	
		Gauge pressure =	bar		
PE 8 P..RS 293 +RSUV..POA 352	Carry out adjustment on engine.				

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 VAL 3,3a
3. Edition

En

PES3A95D 320 RS 2655 RSV 325-1150 A 2 B 2178-1R
Komb.-Nr. 0 400 873 032
1 - 2 - 3 je $120^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 3.83
company Valmet
engine 311 DS 6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,45-2,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1 1150	2 10,0+0,1	3 8,3 - 8,5	4 0,3 (0,6)	2	3	6
325	7,0-7,2	0,9 - 1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
100se	800	0,3-1,0	-	-	-	ca. 25	325	6,7	1150	10,0-10,1	
	X = 5,0						100	min. 19,5	500	11,3-11,4	
ca. 51	9,0	1190-1200					325	7,1-7,3	915	10,6-10,8	
	4,0	1240-1270					460-520	= 2,0			
	1420	0,3 -1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limitat		3a	Fuel delivery characteristics		Starting fuel delivery	5	4a	Idle stop
rev/min	cm³/1000 strokes	3	Note:	rev/min	4	rev/min	cm³/1000 strokes	6	7	8	Control rod travel mm	
1150	82,5-84,5 (80,5-86,5)		changed to	1190-1200*	500	83,0-86,0 (81,0-88,0)		100	171,0 - 181,0 ≈ 19,5-21,5 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.83

BOSCH

Geschäftsbericht KH Kundendienst Kfz-Ausrüstung
1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérative d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

A24

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 IHC 7,61

1. Edition

En

PES 6 MW 100/320 RS 1108
RQV 350-1300 MW 45

0 403 446 140

1 688 901 016
207 + 3 bar

supersedes
company: IHC
engine: DT 4668
143,5 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pretravel

3,00-3,10
(2,95-3,15)

mm (from BDC) RW = 9-12 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	12,6+0,1	10,4-10,6	0,35(0,6)			
350	6,5-6,6	1,6-2,0	0,35(0,55)			
1300	12,6+0,1		0,65(0,7)			
500	9,8+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min	Control rod travel mm	Intermediate rated speed			Lower rated speed Degree of deflection of control lever 7	Control rod travel mm	Sliding sleeve travel 1
			Control rod travel mm	rev/min	Control rod travel mm			
max.	8,0 0-1	1440-1505 1550	-	-	-	ca. 14 380-700	100 350	min. 9,0 6,5-6,6
ca. 61,5	11,6 4,0	1355-1375 1477-1487						

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 1	Control-rod stop cm³/1000 strokes 2	Rotational-speed limitation intermediate speed 3	Fuel delivery characteristics		Starting fuel delivery idle switching point 6	Torque-control travel Control rod travel mm 8	
			rev/min	cm³/1000 strokes			
LDA 900	0,9 bar 104,0-106,0 (102,0-108,0)	1355-1375*	LDA 1300 LDA 500	0,9 bar 109,5-113,5 (107,5-115,5) 0 bar 54,0-56,0 (52,0-58,0)	100	19-21 mm RW 140-180 (137-183)	

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-dimension difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
RS 1108 + MW 45	0,9	0 0,19 0,67	12,6 - 12,7 9,8 - 9,9 10,3 - 10,4 12,1 - 12,2

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 i 1

2. Edition

En

PE 6 P 110 A 720 RS 3034 Z RQV 200-1200 PA 554

Komb.-Nr. 0 401 846 770

superseded 8.83

company: Saab Scania
engine: DS8 05

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 - 3,4
(3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	11,3+0,1	10,1 - 10,3	0,5(0,8)			25 ± 0,1
225	5,3-5,5	1,5 - 1,9	0,2(0,4)			2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	7	8	9	10	11
max.	1220	15,2-17,8	-	-	-	-	ca. 16	100	min. 6,8	150	0 - 1,0
ca. 61	10,3 4,0 1500	1240-1250 1360-1390 0 - 1,0						225	5,3- 5,5	500 850	3,4-3,9 3,4-5,8 7,9
								410-470 = 2,0	1200		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed rev/min	Fuel delivery characteristics high idle speed 5a rev/min		Starting fuel delivery idle switching point rev/min		Torque-control travel Control rod travel rev/min	
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 101,0-103,0 (99,0-105,0)	1240-1250*	LDA 1200	0,9 bar 111,5-114,5 (109,0-117,0)	100	190,0-240,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6 .83

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

increasing pressure - in bar gauge pressure

SCA 8,0 i 1

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE 6 P..RS 3034 Z + RQV..PA 554	0,90	0 0,21	11,3 - 11,4 10,9 - 11,0 11,0 - 11,2

Notes.

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 1 g 10

1. Edition

En

PES 2 A 80 D 310/3 RS 1322 RSV 325-1150 A 8 B 2011-1 L
Komb.-Nr. 0 400 462 054

supersedes KHD
company F 2 L 912
engine 25 kW bei 2300 min⁻¹
Schlepper D 3607-S 33

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,85-2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	10,9+0,1	5,5-5,6	0,25(0,4)			
325	8,9-9,1	1,2-1,8	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 26	325	8,5	1150	10,9-11,0
	x = 6,0						100	min. 19,5	500	11,8-11,9
ca. 60 (2a)	9,9	1190-1200					325	8,9-9,1	1010	11,3-11,5
	4,0	1320-1350					690-750=2,0			
	1480	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limitat.		3a	Fuel delivery characteristics		Starting fuel delivery Idle	5	4a	Idle stop	
	Test oil temp. 40°C (104°F)	rev/min		cm ³ /1000 strokes	rev/min		Note: changed to ...	rev/min	cm ³ /1000 strokes			rev/min	Control rod travel mm
1150	54,5-55,5 (53,0-57,0)		1190-1200*	750		54,0-56,0 (52,0-58,0)		100	19,5-21,0 mm RW	-	-		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 c 1

1. Edition

En

PE 10 A 95 D 610/4 LS 2452 RQV 300-1150 AB 1055 DL

Komb.-Nr. 0 400 649 210

1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2
0 - 27 - 72 - 99-144-171-216-243-288-315° $\pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes

company: KHD

engine: F 10 L 413 F

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0 - 2,1
(1,95-2,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,3-9,4	8,4 - 8,6	0,3(0,6)			
300	5,9-6,1	0,9 - 1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	325	1,5-1,8
ca. 64	8,3	1190-1200					300	5,9-6,1	700	3,7-4,0
	4,0	1230-1260					320-425		1100	7,2-7,4
	1350	0 - 1,0							1250	9,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	Control rod travel rev/min 8	mm 9
1150	83,5-85,5 (81,5-87,5)	1190-1200*	850	92,0-95,0 (90,0-97,0)	100	116,5-126,5 (113,5-129,5)	1150 500 950 1050	9,3-9, 10,3+0, 10,0+0, 9,4-9,

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 6,1e1

4. Edition

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2471 RSV 325-1150A 8 B 674 DL
Komb.-Nr. 0 400 876 275

supersedes 9.82

company: KHD

engine: BF 6 L 913 C

132 kW

bei 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,85-2,05)

Port closing at prestroke

1,90-2,00

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	11,8+0,1	10,8 - 11,0	0,3(0,6)	2	3	6
	7,2-7,4	1,6 - 2,2	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 15	325	6,8	500	11,8+0,1
	x =	4,75					100	min. 19		
ca. 55	1190-1200=10,8		5	325	7,2-7,4	615-675=2,0	100	min. 19	500	11,8+0,1
	1235-1265= 4,0									
	1400=0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation	③a) Fuel delivery characteristics		Starting fuel delivery idle		⑤a) Idle stop	
Test oil temp. 40°C (104°F) rev/min:	cm ³ /1000 strokes 1	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 108,0-110,0 (106,0-112,0)	1190-1200*	LDA 850	0,7 bar 102,5-105,5 (100,5-107,5)	100	120,0-130,0 = 15,9 - 16,4 mm RW	325	6,8
			I.D.A.	0 bar 62,0-64,0 (59,5-66,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-dimension difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
2471 + 674 DL	0,7 bar	0	11,8 - 11,9
		0,27	10,6 - 10,7
		0,1	11,6 - 11,7
			10,8 - 11,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 6,1 e

6. Edition

En

PES 6 A 95 D 410 RS 2471 RSV 325-1150 A 8 B 707 DL

Komb.-Nr. 0 400 876 274

supersedes 11.82
company KHD
engine BF6L 913 C
132 kW
Einbau 2300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 - 2,0
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,8+0,1	10,8-11,0	0,3(0,6)			
325	7,1-7,3	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3 - 1,0 $x = 4,75$	-	-	-	ca. 21	325	6,7	1150	11,8-11,9
							100	min.19,0	500	11,8-12,0
ca. 55	10,8	1190-1200	4,0	1235-1265	1400		325	7,1-7,3		
(2a)							590-650	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)	rev/min	cm³/1000 strokes	(6) Rotational-speed limitat Note: changed to .. rev/min	rev/min	cm³/1000 strokes	Starting fuel delivery Idle	rev/min	cm³/1000 strokes	(5) Idle stop Control rod travel mm	rev/min
1	2	3	4	5	6	7	8	9	10	11
LDA 1150	0,7 bar 108,0-110,0 (106,0-112,0)	1190-1200*	LDA 850 LDA 500	0,7 bar 102,5-105,5 (100,0-108,0) 0 bar 62,0-64,0 (59,5-66,5)	100	125,0-135,0 122,0-138,0 = 15,5 - 15,8 mmRM	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

- 2 -

KHD 6,1 e

Test at n = 1150 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel-diminution difference (1)
		Gauge pressure =	bar	
PES 6 A..RS 2471 + RSV..A 8 B707DL	0,70	0,37 0,09 0	bar	11,8-11,9 11,5-11,6 10,1-10,3 9,9-10,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 i 1

5. Edition

En

PES 6 A 80 D 410/3 RS 2527	RQV 300-1400 AB 951 DL (1-2)	supersedes 98.82
RS 2348	RQ 300/1400 AB 935 DL (3)	company KHD
	RQ 300/1325 AB 935 DL (4,7)	engine: F 6 L 913
Instructions for items 2 and 5: page 5.	RQ 300/1250 AB 935 DL (5-6)	(1-2) 96 kW (130PS) / 2800min ⁻¹
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers	(8)	(3) 96kW (130PS) / 2800min ⁻¹
		(4,7) 92kW (125PS) / 2650min ⁻¹
		(5) 89kW (121PS) / 2500min ⁻¹
		(6) 77kW (105PS) / 2500min ⁻¹
		(8) 85kW (115PS) / 2500min ⁻¹

Testoöl-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 - 2,0 mm (from BDC)
(1,85-2,05)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	12,5+0,1	6,7 - 6,9	0,2(0,35)			
300	8,0-8,2	1,0 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

.. RS 2527
RS 2348 m. RQV..AB 951 (1-2)

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed			Lower rated speed Degree of deflection of control lever 7	Control rod travel mm 8	Control rod travel rev/min 9	Sliding sleeve travel mm 10	Sliding sleeve travel rev/min 11
			Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6					
max.	1470	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	250	0,4-1,0
ca. 65	11,0 4,0 1700	1440-1450 1545-1575 0 - 1,0					300 410-650	5,9-6,1 2,0	630 1020 1400	2,8-3,5 4,6-5,0 7,6
						(3a)				

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min
1	2	3	4	5	6
1400	69,0-70,0 (67,5-71,5)	1440-1450*	700	64,5-66,5 (63,0-68,0)	100 17,3-17,6 mm RW
					1400 1150 700
					12,0+0,1 12,3+0,3 12,8+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

B. Governor Settings

..RS 2527 u. ..RS 2348 m.
RQ 300/1400 AB 935 DL (3)

KHD 1 i 1

-2-

Checking of slider PRG check		Full-load speed regulation						Idle speed regulation						Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel mm		Control rod travel mm	Control rod travel mm		
		Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm		Control rod travel mm	Control rod travel mm		Control rod travel mm	Control rod travel mm				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
700	19,2-20,8 VH ca. 46°	700	20,0	11,0 4,0 1700	1445-1460 1540-1570 0 - 1,0	300	8,5	100 300 600-640=2,0mm 750	min. 10,0 8,4-8,6 max.1,0	1400	12,0-12,1 950 700	12,5-12,8 13,0-13,2			

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	7	8
1400	69,0 - 70,0 (67,5 - 71,5)		-	700	64,5-66,5 (63,0-68,0)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1325 AB 935 DL (4,7)

Checking of slider PRG check		Full-load speed regulation						Idle speed regulation						Torque control	
Setting point rev/min	Control rod travel mm	Setting point		Test specifications		Setting point rev/min	Test specifications		Control rod travel mm	Control rod travel mm		Control rod travel mm	Control rod travel mm		
		Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm		Control rod travel mm	Control rod travel mm		Control rod travel mm	Control rod travel mm				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
820	19,2-20,8 VH ca. 46°	820	20,0	11,5 4,0 1600	1370-1385 1460-1490 0 - 1,0	300	6,0	100 300 500-540 = 2,0 700	min. 7,5 5,9-6,1 max. 1,0	1325	12,5-12,6 775 875	13,6-13,7 13,2-13,4 1000			

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes / mm
1	2	3	4	5	6	7	8
1325	68,5-69,5 (67,0-71,0)		700	775	72,5-75,5 (71,0-77,0)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB935DL (5)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel mm	Setting point		Test specifications		Setting point	Test specifications		Control rod travel mm	Control rod travel mm	
		rev/min	Control rod travel mm	Control rod travel mm	rev/min		rev/min	Control rod travel mm		rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	11,5	1295-1310	300	8,5	100	min. 9,5	1250	12,5-12,6
VH max. 46°				4,0	1370-1400			300	8,4-8,6	910	13,4-13,6
								580-620=2,0		800	13,8-13,9
										1045	12,7-13,0

Torque-control travel on flyweight assembly dimension a = 0,4 mm Speed regulation: At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	6	7
1250	66,5 - 67,5 (65,0 - 69,0)		-	800	64,0 - 66,0 (62,5 - 67,5)	-	-

Checking values in brackets

B. Governor Settings

..RS 2527 u. ..RS 2348 m. RQ 300/1250 AB 935 DL (6)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Control rod travel mm	Setting point		Test specifications		Setting point	Test specifications		Control rod travel mm	Control rod travel mm	
		rev/min	Control rod travel mm	Control rod travel mm	rev/min		rev/min	Control rod travel mm			
1	2	3	4	5	6	7	8	9	10	11	12
800	19,2-20,8	800	20,0	10,9	1295-1310	300	8,5	100	min. 10,0	1250	11,9-12,0
VH ca. 46°				4,0	1360-1390			300	8,4-8,6	950	12,7-12,9
								580-620 = 2,0		800	13,5-13,6
								750	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0,65 mm Speed regulation: At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	6	7
1250	58,0 - 60,0 (56,5 - 61,5)		-	700	53,5 - 56,5 (52,0 - 54,0)	-	-

Checking values in brackets

En

B. Governor Settings

KHD 1 i 1 - 4 -
..RS 2527 m. RQ 300/1250 AB 935 DL (8)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point Control rod travel rev/min mm	Control rod travel rev/min mm	Setting point		Test specifications		Setting point Control rod travel rev/min mm	Control rod travel rev/min mm	Test specifications		Control rod travel rev/min mm	Control rod travel rev/min mm
		1	2	3	4			5	6		
800	19,2-20,8	800	20,0	9,5	1295-1310	300	8,5	100	min. 9,5	1250	10,5-10,6
VH = max. 46°				4,0	1360-1390	300		300	8,4-8,6	1200	10,7-10,8
						580-620	= 2,0	580-620	= 2,0	800	11,4-11,6
								500		500	11,4-11,6

Torque-control travel
on flyweight assembly dimension a = 0,45 mm
Speed regulation At 1295-1310 min⁻¹
1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	6	7
1250	60,5-62,5 (58,5-64,5)		-	800	58,5-60,5 (57,0-62,0)	-	-
				500	52,0-54,0 (50,5-55,5)		

Checking values in brackets

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point Control rod travel rev/min mm	Control rod travel rev/min mm	Setting point		Test specifications		Setting point Control rod travel rev/min mm	Control rod travel rev/min mm	Test specifications		Control rod travel rev/min mm	Control rod travel rev/min mm
		1	2	3	4			5	6		

Torque-control travel
on flyweight assembly dimension a = mm
Speed regulation At 1295-1310 min⁻¹
1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	6	7

Checking values in brackets

Notes:

RS 2348

With item 2 - PES 6 A 80 D 410/3 RS 2527 with RQV 300-1400 AB951DL
and item 6 - PES 6 A 80 D 410/3 RS 2527 with RQ 300/1250 AB935DL
RS 2348

an engine code no. instead of the engine output is sometimes given by the customer on the engine nameplate.

These engine code nos. 1025, 1032, 1034, 1035 and 0708 require a reduced full-load delivery:

$$\begin{aligned} n 1250 &= 57,5 - 59,5 \text{ cm}^3/1000 \text{ strokes} \\ n 850 &= 55,5 - 57,5 \text{ cm}^3/1000 \text{ strokes.} \end{aligned}$$

From engine no. 6 216 324 the following applies:

$$\begin{aligned} n 1250 &= 63,5 - 65,5 \text{ cm}^3/1000 \text{ strokes} \\ n 850 &= 60,5 - 62,5 \text{ cm}^3/1000 \text{ strokes.} \end{aligned}$$

This must at all costs be taken into account when new adjustments and control measurements are made.

①

Test Specifications Fuel Injection Pumps ① and Governors

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WPP 001/4 KHD 1 h

4. Edition

En

PE 6 A 95 D 410 LS2587	RQV 300-1150 AB1088L	(1)	supersedes 9.82
PE 8 A 95 D 410 LS2588	RQV 300-1150 AB1088L	(2)	company KHD
PE 10 A 95 D 610/4 LS2589	RQV 300-1150 AB1047DL	(3)	engine F 6 L 413 (1) (102kW-139PS)
PE 12 A 95 D 610 LS2590	RQV 300-1150 AB1047DL	(4)	(2) F 8 L (136kW-185PS) (3) F10 L (170kW-231PS) (4) F12 L (204kW-277PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

TestOil-ISO 4113

A. Fuel Injection Pump Settings

1,50-1,60
Port closing at pre-stroke (1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	9,0-9,2	7,8-8,0	0,3(0,6)			
300	6,2-6,3	1,4-2,0	0,3(0,5)			
800/1000	---	C,4-5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) 2587 mit 1088L

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	⑩	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
ca.68	1150	15,2-17,8	-	-	-	-	-	ca.11	100	min.7,5	300	1,2-1,3	
	1350	0-1							300	5,9-6,1	600	3,1-3,4	
ca.64	8,0	1190-1200						320-400	610-670 = 2,0		1190	8,5	
	4,0	1220-1250											

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	②b	④b	⑤b	⑥	⑤
1	2	3	4	5	6	Control rod travel rev/min
1150	77,5-79,5 (75,5-81,5)	1190-1200*	800	80,5-82,5 (79,0-84,0)	100	119,0-129,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Cam sequence and angular cam spacing

1 - 6 - 5 - 4 - 3 - 2
0 - 75-120-195-240-315° (1)

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3
0 - 45-90-135-180-225-270-315° (2)

1 - 10 - 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2
0 - 27 - 72-99-144-171-216-243-288-315° (3)

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 15-60-75-120-135-180-195-240-255-300-315° (4)

Tolerance \pm 0,50 (\pm 0,75)

B. Governor Settings

(2) 2588 mit 1088L

KHD1h

- 3 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	10	1
max.	1150	15,2-17,8		-	-	-	ca. 11	100	min. 7,5	300	1,2-1,3	
---	---	---						300	5,9-6,1	600	3,1-3,4	
ca. 64	8,0	1190-1200						610- 670=2,0	1190	-	8,5	
	4,0	1220-1250						320-400				
	1350	0 - 1,0										

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min
1	2	3	4a	5	6
1150	77,5 - 79,5 (75,5 - 81,5)	1190-1200*			100
					119,0-129,0
			800	80,5 - 82,5 (78,5 - 84,5)	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

(3) 2589 mit 1047 DL

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	10	1
max.	1150	15,2-17,8		-	-	-	ca. 11	100	min. 7,5	300	1,2-1,3	
---	---	---						300	6,2-6,3	600	3,1-3,4	
ca. 64	8,0	1190-1200						620-680=2,0	1190	-	8,5	
	4,0	1230-1260						330-410				
	1350	0 - 1,0										

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min
1	2	3	4a	5	6
1150	78,5 - 80,5 (76,5 - 82,5)	1190-1200*	800	83,0-86,0 (80,5-88,5)	100
					116,5-126,5 (113,5-129,5)
					= 14,4-14,8
					mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

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B. Governor Settings

(4) 2590 mit 1047DL KHD1h

- 4 -

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	3	1
max.	1190	15,2-17,8		-	-	-	ca.11	100	min. 7,7	300	1,2-1,3	
- - - - -	- - - - -	- - - - -						300	6,1-6,3	600	3,1-3,4	
ca. 64	8,1	1190-1200								1190	8,5	
	4,0	1225-1255										
	1350	0 - 1,0										

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	Rotational-speed limitation intermediate speed		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	4a	5	5	6	7	8	9
1150	78,5 - 80,5 (76,5 - 82,5)	1190-1200*	800		83,0-86,0 (80,5-88,5)	100	116,5 - 126,5 (113,5-129,5)	500	1150	9,1+0,1

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel
1	2	3	2a	4	5	6	4	7	8	9	3	1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	Rotational-speed limitation intermediate speed		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	4a	5	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

En

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 k 3

1. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1188 L
Komb.-Nr. 0 400 836 028

supersedes
company KHD
engine BF 6 L 913
118 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,2-2,3
(2,15-2,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	12,0+0,1	8,9-9,0	0,3(0,5)			
300	6,9-7,1	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel	④	Degree of deflection of control lever	rev/min	Control rod travel	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
max.	1290	15,2-17,8		-	-	-		ca. 13	300	6,9-7,1		325	1,5-1,7
ca. 65	11,0 4,0	1290-1300 1375-1405						355-470				850	4,9-5,1
							③a					1150	7,1-7,3
												1400	9,9

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	④a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
LDA 1250	0,7 bar 88,5-89,5 (86,5-91,5)	1290-1300*		LDA 500	0 bar 59,0-61,0 (56,5-63,5)	100	110,0-120,0 (107,0-123,0) =17,1-17,5 mm RW	1250 500 775 1025	12,0+0,1 12,8+0,1 12,5+0,1 12,1+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

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B20

B20

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

increasing

KHD 6,1 k 3

Pump/governor	Setting	Measurement	Control rod travel- diminution (1)
	Gauge pressure =	bar	mm
PES 6 A..RS 2592 + RQV..AB 1188 L	0,70	0 0,26 0,19	12,8-12,9 10,9-11,1 12,4-12,5 11,9-12,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

40.

WPP 001/4 KHD 1 g 6

2. Edition

En

Testoil-ISO 4113

PES 4 A 85 D 410/3 RS 2610 RSV 325-1150 A 8 B 2102 L
 1 - 3 - 4 - 2 je $90^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)
 Komb.-Nr. 0 400 864 051

supersedes 9.82
 company: KHD
 engine: F 4 L 913
 55 kW (75 PS)
 Schlepper D 7807 -
 S 16

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,45-2,65)

Port closing at prestroke

2,50-2,60

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,3+0,1	6,8 - 6,9	0,3(0,45)			
325	8,7-8,9	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in **B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
loose	800	0,3-1,0				ca. 17	325	8,3	1150	1,3-11,4
	x = 3,5						325	8,7-8,9	900	1,6-11,9
ca. 54	1190-1200 = 10,3						460-520 = 2,0		500	2,1-12,2
	1230-1260 = 4,0									
	1400 = 0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a) Fuel delivery characteristics		Starting fuel delivery		⑤a) Idle stop
Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	Control rod travel rev/min
1150	68,0 - 69,0 (66,0 - 71,0)	1190-1200*	500	57,5 - 59,5 (55,5 - 61,5)	-	-	-
			800	64,5 - 66,5 (62,5 - 68,5)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

BOSCH

B22

Test Specifications Fuel Injection Pumps and Governors

40.

WPP 001/4 KHD 1 g 3
4. Edition

En

PES 4 A 85 D 410/3 RS 2638

RSV 325-1150 A 8 B 2168

supersedes 3.83

L company: KHD

engine: BF 4 L 913 T

66 kW (90 PS)₋₁

bei 2300 min⁻¹

Schlepper DX 92 (1)

60 kW (82 PS)₋₁

bei 2300 min⁻¹

Schlepper DX 86 (2)

Komb.-Nr. 0 400 864 054

1 - 3 - 4 - 2 je $90^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,5-2,6
(2,45-2,65)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery (1) cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery (2) cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	11,8+0,1	8,2 - 8,3	0,3(0,45)	10,6+0,1	7,5-7,6	
325	7,7-7,9	0,9 - 1,5	0,2(0,4)	7,7-7,9	1,0-1,6	

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Degree of deflection of control lever	Control rod travel rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm
100se	800	0,3-1,0	-	-	-	ca. 29	325	7,3	1150	11,8+0,1
	X = 4,0								100	min. 19,5
ca. 53	10,8	1190-1200					325	7,7-7,9	500	12,3+0,1
(5)	4,0	1325-1355					700-760	= 2,0	965	12,0+0,2
	1495	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
(1) 1150	82,0-83,0 (80,0-85,0)	1190-1200*	800	79,0-82,0 (76,5-84,5)	100	108,5-118,5 = RW 16,9 - 17,4 mm	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1 Control rod travel mm 2 Control rod travel mm rev/min 3			Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees 7		Lower rated speed rev/min 8 Control rod travel mm 9		3 Torque control rev/min 10 Control rod travel mm 11	
Loose	800	0,3-1,0	-	-	-	ca.26	325	7,0	1150	10,5+0,1	
	x = 4,0						100	min.19,0	500	11,2+0,1	
ca.56	9,6	1220-1230					325	7,4-7,6	900	10,9+0,3	
(2a)	4,0	1325-1355					720-780	= 2,0			
	1475	0,3-1,7									

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1 cm³/1000 strokes 2			6 Rotational-speed limitat. Note: changed to ...) rev/min 3			3a Fuel delivery characteristics rev/min 4 cm³/1000 strokes 5			Starting fuel delivery Idle rev/min 6 cm³/1000 strokes 7			5 Idle stop Control rod travel mm 8 9	
(2)	1150	74,5-75,5 (72,5-77,5)	1220-1230	800		65,5-68,5 (63,5-70,5)			100	108,5-118,5	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

1 Upper rated speed rev/min Degree of deflection of control lever 1 Control rod travel mm 2 Control rod travel mm rev/min 3			Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees 7		Lower rated speed rev/min 8 Control rod travel mm 9		3 Torque control rev/min 10 Control rod travel mm 11	
(2a)											

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1 cm³/1000 strokes 2			6 Rotational-speed limitat. Note: changed to ...) rev/min 3			3a Fuel delivery characteristics rev/min 4 cm³/1000 strokes 5			Starting fuel delivery Idle rev/min 6 cm³/1000 strokes 7			5 Idle stop Control rod travel mm 8 9	

Checking values in brackets

En

* 1 mm less control rod travel than col. 2

Test Specifications

Fuel Injection Pumps 1A and Governors

40

NPP 001/4 *KHD 40,5 d

1. Edition

En

PE8 P120 A920/5 RS 293

RZU 750 P 1/9 R

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 948 029

1-6- 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° ±0,5° (+0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

2,0-2,1
Port closing at prestroke
(1,95-2,15)

mm (from BDC)

= RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		8	Control rod travel mm	10	Control rod travel mm
full	750 758 800	1,0-14,0 1,0-1,5 1,0	-	-	-	-	-	-	-	-
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min	6 Rotational-speed limit Note: changed to rev/min	3a Fuel delivery characteristics rev/min	Starting fuel delivery idle rev/min	5 Idle stop Control rod travel mm			
1	2	3	4	6	7	8	9
* Not known. Carry out adjustment on engine.			-	-	100	19,5-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 40,5 d 3

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RZU 750 P 1/14 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75- 90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 948 034

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes		Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
			1	2			
600	12,0+0,1	20,5-22,1	0,8				
600	6,0-6,2	4,1-5,3					
600	15,0+0,1	28,6-31,0					
200	6,0-6,2	1,0-2,0					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
full	750	14,0	-	-	-	-	-	-		
	770	4,8-8,3								
	800	1,0-1,5								
2a	840	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)	rev/min	cm³/1000 strokes	6 Rotational-speed limitat. Note: changed to .. rev/min	(3a) Fuel delivery characteristics		Starting fuel delivery Idle	(5) Idle stop Control rod travel rev/min	(4a) Idle stop Control rod travel mm
				4	5			
Not known. Carry out adjustment on engine.	-	-	-	-	-	100	19,5-21,0 RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C2

6.83

C2

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 40,5 d 1

1. Edition

En

PE8P120A920/5 RS 293

RZU 900 P 2/11 R

supersedes
company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 948 030

1-6 - 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
full	900	1,0-14,0	-	-	-		-	-	-	-
	910	1,0- 9,0								
	920	1,0- 4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limit: Note: changed to ...	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min	2	rev/min	4	5	6	7	8	9
	Not known. Carry out adjustment on engine.		-	-	-	100	19,5-21,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Testoil-ISO 4113

C3

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 KHD 40,5 d 2

1. Edition

PE8PT20A920/5 RS 293 RZU 900 P2/12R

En

supersedes -
company KHD
engine BA 16 M 816

1-6 - 4 - 5 - 8 - 3 - 2 - 7
0-75-90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

Komb.-Nr. 0 401 948 032

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke (1,95-2,15)

mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	
	Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	Control rod travel mm
2	900	14,0	-	-	-	7	8	9	10	11
full	910 10,8-12,2 930 4,0-8,4					-	-	-	-	-
2a	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note: changed to .. rev/min	3a	Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	3	rev/min	4	5	6	7	8	9
	Not known. Carry out adjustment on engine.	-	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 40,5 c 5

1. Edition

En

PE 8 P 120 A 920/5 RS 293 R SUV 300-1000 P 0 A 323 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7

0 - 75- 90-120-210-225-315-345° $\pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 084

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0 - 2,1
(1,95-2,15)

mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min	Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed			③ Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min		7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
Ca. 56	1000	16,0	without auxiliary spring	ca. 18	300	8,0	980	0
	1030	10,8			50	19,0-21,0	430	0
	1055	6,0			300	7,7-8,3	340	1,2-1,8
②a	1030	10,0-12,0	with auxiliary spring		350	4,4-6,0		
	1055	3,8-6,0			500	0 - 1,0		
	1200	0,3-1,0						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limitat Note changed to rev/min	③a Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min cm³/1000 strokes	⑤ Idle stop Control rod travel mm
rev/min	3	4 5	6 7	8 9
Not Known. Carry out adjustment! on engine.	1010-1020*	-	-	100 19,5-21,0 mm RW
				- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

Testoil ISO 4113

C5

Test Specifications

Fuel Injection Pumps 1A

and Governors

40

WPP 001/4 KHD 40,5 c 3

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 P 0 A 343 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75- 90-120-210-225-315-345° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

company KHD

engine BA 16 M 816

Komb.-Nr. 0 401 878 092

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	,6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	
ca. 56	1000	16,0	without auxiliary spring	ca. 18	300	8,0	980	0	0
	1030	10,8			50	19,0-21,0	430	0	
	1055	6,0			300	7,7-8,3	340	1,2-1,8	
(2a)	1030	10,0-12,0	with auxiliary spring		350	4,4-6,0			1,2-1,8
	1055	3,8-6,0			500	0 -1,0			
	1200	0,3-1,0							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat Note: changed to ...	3a Fuel delivery characteristics	Starting fuel delivery Idle	5 Idle stop
rev/min	rev/min	rev/min	rev/min	rev/min
1	2	3	6	9

Not known.
Carry out adjustment
on engine.

1010-1020* - - 100 19,5-21,0
mm RW - -

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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Testoil-ISO 4113

C6

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 40,5 c 4

1. Edition

En

PE 8 P 120 A 920/5 RS 293 RSUV 300-1000 POA 344 R

1 - 6 - 4 - 5 - 8 - 3 - 2 - 7
0 - 75- 90-120-210-225-315-345° $\pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes

KHD

company:

BA 16 M 816

engine

Komb.-Nr. 0 401 878 093

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5 - 21,1	0,8			
600	6,0-6,2	4,1 - 5,3				
600	15,0+0,1	28,6 - 31,0				
200	6,0-6,2	1,0 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca. 56	1000	16,0	without auxiliary spring	ca. 18	300	50	300	8,0	980	0
	1030	10,8					300	19,0-21,0	430	0
	1055	6,0					350	7,7-8,3	340	1,2-1,8
②a	1030	10,0-12,0	with auxiliary spring		500	500	4,4-6,0	0 - 1,0		
	1055	3,8-6,0								
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limit Note: changed to ... rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ Idle stop
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min
1	2	3	4	5
Not known. Carry out adjustment on engine.	1010-1020*	-	-	100 19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 40,5 a 4

1. Edition

En

PE 8 P120 A920/5 RS293

RSUV 300-750 P9 A 346 R

supersedes:
company KHD
engine BA16M816

1-6 - 4 - 5 - 8 - 3 - 2 - 7

0-75-90-120-210-225-315-345° ±0,5° (±0,75°)

Komb.-Nr. 0 401 878 095

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke (1,95-2,15)

mm (from BDC)=RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,1	4,1- 5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 68	750	16,0				without auxiliary spring	ca. 31	300	8,0	730	0	
	770	12,5					50	19,0-21,0	400		0	
2a	800	6,2					300	7,7- 8,3	320		1,2-1,8	
	785	7,4-10,4					350	1,4-4,2				
	800	4,8-7,8					400	0 -1,0				
	880	0,3-1,0										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limitat.		3a	Fuel delivery characteristics		Starting fuel delivery	5	4a	Idle stop
	Test oil temp. 40°C (104°F)	rev/min	Note:	changed to ..	rev/min	rev/min	cm³/1000 strokes	Idle	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1		2	3		4	5		6	7		8	9
	Not known. Carry out adjustment on engine.		760-770*	-	-			100	19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 a2
1. Edition

PET2PT20A 920/5 RS 294

RSUV 300-750P9 A 346 R

En

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (-0,75^\circ)$

supersedes -
company KHD
engine BA12 M 816
Komb.-Nr. 0 401 870 057

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1
Port closing at prestroke (1,95-2,15)

mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	18,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control Control rod travel rev/min	10 11
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
ca. 68	750	16,0	without auxiliary spring	ca. 31	300	8,0	730	0	730 400 320	0 0 1,2-1,8
	770	12,5			50	19,0-21,0	400	0		
	800	6,2			300	7,7-8,3	320	1,2-1,8		
②a	785	7,4-10,4	with auxiliary spring		350	1,4-4,2				
	800	4,8-7,8			400	0-1,0				
	880	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limiter Note: changed to rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ Idle stop
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min
1	2	3	4	5
Not known. Carry out adjustment on engine.	760-780*	-	-	100 19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

BOSCH

Geschäftsbericht KH. Kundendienst Kfz-Ausrüstung
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Testoil-ISO 4113

C9

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 i

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 750 P1/9 R

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes^{*}
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 024

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 mm (from BDCF) RW 9,0 - 12,0 mm
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
full	750 758 800	1,0-14,0 1,0-1,5 1,5	-	-	-	-	-	-	-	-
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat Note: changed to ..) rev/min	3a Fuel delivery characteristics rev/min	Starting fuel delivery idle	5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
Not known. Carry out adjustment on engine.	-	-	-	100	19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 i 3

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 750 P1/14 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes—
company: KHD
engine BA 12 M 816
Komb.-Nr. 0 401 940 027

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	10	Control rod travel mm	11
full	750	14,0	-	-	-	-	-	-	-	-	-
	770	4,8-8,3									
	800	1,0-1,5									
2a	840	1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note: changed to ...	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3		4	5	6	7	8	9
Not known. Carry out adjustment on engine.			-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

C11

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 d
1. Edition

ER

PE 12 P 120 A 920 RS 294

RS 250/1000 P1/422 R

supersedes
company: KHD

engine: BA 12 M 816

Komb.-Nr. 0 401 870 060

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
1	2	3	7	8	9	10
loose	800	0,3-1,0	-	250	6,4	1000
	X = 5,0			250	6,3-6,5	420
ca. 58	13,9	1040-1050		390-450 = 2,0		550
(2a)	4,0	1105-1135				
	1200	0,3-1,7	150-200			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note: changed to ...)	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	rev/min	7	8	9
1	2			4		6		8	
Not known.		1040-1050*		-	-	100	19,5-21,0	-	-
Carry out adjustment on engine.							mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 i 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 900 P2/11 R

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes -

company: KHD

engine: BA 12 M 816

Komb.-Nr. 0 401 940 025

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
	920	1,0-4,0								
2a	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	3	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9
Not Known. Carry out adjustment on engine.		-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 30,4 i 2

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RZU 900 P2/12 R
1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -
company: KHD
engine: BA 12 M 816
Komb.-Nr. 0 401 940 026

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1
(1,95-2,15) mm (from B06) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Torque control Control rod travel rev/min mm
1	2	3	7	8	10 11
full	900 14,0 910 10,8-12,2 930 4,0-8,4	- - -	-	- -	- -
2a	1000 1,0				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat. Note: changed to ...	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	3	rev/min	4	rev/mm cm³/1000 strokes	6	7	8	9
	Not known. Carry out adjustment on engine.		-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C14.

C14

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 e

1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-600 P 8 A 322 R
1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes:
company KHD
engine: BA 12 M 816
Komb.-Nr. 0 401 870 061

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9+0,1	29,6-30,0	0,5(0,8)			
300	6,3-6,5	2,2-2,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever: 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
Loose	800	0,3-1,0	-	-	-	ca. 30	300	5,9	600	14,9-15,0
	x = 4,0						300	6,3-6,5	220	16,2-16,8
ca. 65	13,9	640-650					310-370=2,0		350	14,9-15,0
2a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat. Note: changed to ...	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop
1	rev/min cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	Control rod travel mm
	Not known. Carry out adjustment on engine.		640-650*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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TestOil-ISO 4113

CAS

C15

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 b

1. Edition

En

PE12 P120 A 920 RS 294 RSVU 300-750 P9 A 322 R
 1-10-5-7-2-11-6-8-3-12-4-9 je $30^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

supersedes...

company: KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 062

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke (1,95-2,15)

mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9 ± 0,1	31,0-31,4	0,5(0,9)			
300	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3	Torque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm
loose	800 0,3-1,0 X = 4,0	- - - -	ca.26	300 5,9 300 6,3-6,5 325-385 = 2,0	750 14,9-15,0 280 16,2-16,8 400 14,9-15,0	
ca.62 (2a)	13,9 790-800 4,0 820-850 985 0,3-1,7					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note: changed to ...)	3a	Fuel delivery characertics	Starting fuel delivery Idle	5	4a	Idle stop
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
Not known. Carry out adjustment on engine.	790-800*	-	-	100	19,5-21,0 mm RH	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

C16

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 a

1. Edition

En

PE 12 P 120 A 920/5 RS 294 R SUV 300-750 P 9 A 322 R
 1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (-0,75^\circ)$

supersedes -
 company KHD
 engine BA 12 M 816
 Komb.-Nr. 0 401 870 049

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,0-2,1) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,5(0,9)			
200	6,0-6,2	1,2-2,0	0,65(0,95)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever: 1	Upper rated speed rev/min			Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed			Torque control Control rod travel rev/min mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6	8		9	10	11	
loose	800	0,3-1,0 $x = 4,0$	-	-	-	ca. 31	300	7,5	750	12,0-12,1	
ca. 68	11,0 (2a) 4,0 900	770-780 790-820 0,3-1,7					300 315-375=2,0	7,9-8,1 2,0	450 325	12,0-12,1 13,2-13,8	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b) Full-load stop Test oil temp. 40°C (104°F)	6) Rotational-speed limitat. Note: changed to ... rev/min	3a) Fuel delivery characteristics	Starting fuel delivery Idle	5) Idle stop
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min
Not known. Carry out adjustment on engine.	770-780*	-	-	100 19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

C17

Test Specifications Fuel Injection Pumps 1A and Governors

WPP 001/4 KHD 30,4 h 40

1. Edition

En

PE 12 P 120 A 920/5 RS 294 R SUV 300-600 P 8 A 322 R

supersedes
company KHD
engine BA 12 M 816

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Komb.-Nr. 0 401 870 059

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke

(1,95-2,15)

mm (from BDC)

= RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9+0,1	29,6-30,0	0,5(0,8)			
300	6,3-6,5	2,2-2,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Intermediate rated speed			④ Lower rated speed Control-lever deflection in degrees 7	Torque control Control rod travel rev/min			③	③	
	Control rod travel mm	Control rod travel mm rev/min	4		5	6	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.30	300	5,9	600	14,9-15,0
	X = 4,0						300	6,3-6,5	220	16,2-16,8
ca.65	13,9	640-650					310-370 = 2,0		350	14,9-15,0
②a	4,0	660-690								
	825	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F) rev/min	cm³/1000 strokes 2	⑥ Rotational-speed limitat Note: changed to ... 3	③a Fuel delivery characteristics		Starting fuel delivery Idle 6	⑤ Idle stop Control rod travel mm 8
			rev/min	cm³/1000 strokes		
Not known.		640-650 *	-	-	100	19,5-21,0 mm RW
Carry out adjustment on engine.						

Checking values in brackets

* 1 mm less control rod travel than col. 2
6.83

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 f 2

1. Edition

En

PE 12 P 120 A 920 RS 294 R SUV 300-1000 POA 323 R

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 063

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke (1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control					
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm				
ca. 56	1000	16,0	without auxiliary spring	ca. 18	300	8,0	980	0	430	0				
	1030	10,8					50	19,0-21,0	340	1,2-1,8				
②a	1055	6,0	with auxiliary spring	300	350	7,7-8,3	4,4-6,0	0 - 1,0	500	4,4-6,0				
	1030	10,0-12,0					350	7,7-8,3	340	1,2-1,8				
1055	3,8-6,0	.					500	4,4-6,0	500	0 - 1,0				
	1200	0,3-1,0					500	0 - 1,0						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limitat. Note: changed to ...) rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ Idle stop	④a Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
Not known. Carry out adjustment on engine.	1010-1020*	-	-	100	19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

C19

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 30,4 f 3

1. Edition

En

PE 12 P 120 A 920 RS 294 R SUV 300-1000 POA 343 R

supersedes

company: KHD

engine BA 12 M 816
Komb.-Nr. 0 401 870 064

1-10-5-7-2-11-6-8-3-12-4-9 ie $30^\circ \pm 0.5^\circ$ ($\pm 0.75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2.0-2.1

Port closing at prestroke (1.95-2.15) mm (from BDC) = RW 9.0-12.0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	Control rod travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.56	1000 1030 1055	16,0 10,8 6,0				ca. 18	300	8,0	980	0
2a	without auxiliary spring						50	19,0-21,0	430	0
	with auxiliary spring						300	7,7-8,3	340	1,2-1,8
	1030 1055 1200	10,0-12,0 3,8-6,0 0,3-1,0					350 500	4,4-6,0 0-1,0		

The numbers denote the sequence of the tests.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ..) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	rev/min	mm	
1	2	3	4	5	6	7	8	9			
Not known.		1010-1020*		-	-	100	19,5-21,0	-	-		
Carry out adjustment on engine.						mm RW					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C20

C20

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 g

1. Edition

En

PE 12 P 120 A 920/5 RS 294 R SUV 300-1000 P O A 343 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 054

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

$(1,95-2,15)$

mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed			4	Lower rated speed		Torque control	
Degree of deflection or control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10
ca. 56	1000	16,0	without auxiliary spring	ca. 18	300	ca. 18	8,0	980	0
	1030	10,8			50		19,0-21,0		0
	1055	6,0			300		7,7-8,3		1,2-1,8
(2a)	1030	10,0-12,0	with auxiliary spring	50	350	340	4,4-6,0		0
	1055	3,8-6,0			500		0-1,0		
	1200	0,3-1,0							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitat Note changed to) rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
Not known. Carry out adjustment on engine.	1010-1020*	-	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

Test Specifications

Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 30,4 f 4
1. Edition

En

PE 12 P 120 A 920 RS 294 RSUV 300-1000 P0 A 344 R

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes:

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 065

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

^{2,0-2,1}

Port closing at prestroke

(1,95-2,15)

mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min	③ Control rod travel mm
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	10	
ca. 56	1000	16,0	without auxiliary spring	ca. 18	300	300	8,0	980	0	0
	1030	10,8			50	19,0-21,0	430	430	0	
	1055	6,0			300	7,7-8,3	340	340	1,2-1,8	
(2a)	1030	10,0-12,0	with auxiliary spring		350	4,4-6,0				
	1055	3,8-6,0			500	0 - 1,0				
	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑧ Rotational-speed limitat Note: changed to .. rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ Idle stop
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min
Not known. Carry out adjustment on engine.	1010-1020	*	-	-
				100-19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

C22

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 g 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 R SUV 300-1000 P O A 344 R
 1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($^{+0,75^\circ}$)

supersedes:
 company KHD
 engine BA 12 M 816
 Komb.-Nr. 0 401 870 055

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
 $(1,95-2,15)$ mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

① Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control Control rod travel	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	
1	2	3	4	5	6	7	8	9	10	11
ca. 56	1000 1030 1055	16,0 10,8 6,0	without auxiliary spring	ca. 18	300	8,0	980	0		
	1030 1055 1200	10,0-12,0 3,8-6,0 0,3-1,0			50 300 350 500	19,0-21,0 7,7-8,3 4,4-6,0 0-1,0	430 340	0 1,2-1,8		
②a			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limitat Note: changed to) rev/min	③a Fuel delivery characteristics	Starting fuel delivery Idle	⑤ Idle stop	④a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3	4	5	6
Not known. Carry out adjustment on engine.	1010-1020*	-	-	100	19,5-21,0 mm RW
					-

Checking values in brackets

* 1 mm less control rod travel than col 2

TestOil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 40,5 a

3. Edition

En

PE8 P 120 A 920/5 RS 293

RSUV 300-750 P9A345R

supersedes 3.78

company KHD

engine

BA 16 M 816

Komb.-Nr. 0 401 878 094

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestr^{1b}, 95-2,15)

mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1- 5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0- 2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
ca.68	750	16,0	without auxiliary spring	ca.31	300	8,0	730	0	1,2-1,8	0
	770	12,5								
	800	6,2								
(2a)	785	7,4-10,4	with auxiliary spring		50	19,0-21,0	400	0	1,2-1,8	0
	800	4,8- 7,8								
	880	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8
1	2						
Not known.	760-770*	-	-		100	19,5-21,0 mm RW	-
Carry out adjustment on engine.							

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 a 1

1. Edition

En

PE 12 P 120 A 920/5 RS 294 RSVU 300-750 P 9 A 345 R
1-10-5-7-2-11-6-8-3-12-4-9 je 30° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 12 M 816
Komb.-Nr. 0 401 870 056

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at pressure $2,0-2,1$ mm (from BDC) RW 9,0-12,0 mm
(1,95-2,15)

Rotational speed rev/min

1

Control rod travel mm

2

Fuel delivery cm³/100 strokes

3

Difference cm³/100 strokes

4

Control rod travel mm

2

Fuel delivery cm³/100 strokes

3

Spring pre-tensioning (torque-control valve) mm

6

600

12,0-0,1

20,5-21,1

0,8

600

6,0-6,2

4,1-5,3

600

15,0-0,1

28,6-31,0

200

6,0-6,2

1,0-2,0

Adjust the fuel delivery from each outlet according to the values in []

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed rev/min			3 Torque control rev/min	
Degree of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	8	9	10	11
ca. 68	750	16,0	without auxiliary spring	ca. 31	300	8,0	300	19,0-21,0	730	0
	770	12,5			300	7,7-8,3	350	1,4-4,2	400	0
2a	800	6,2	with auxiliary spring		350	0-1,0	400	1,2-1,8	320	
	785	7,4-10,4								
	800	4,8-7,8								
	880	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2a Full-load stop Test oil temp. 40°C (104°F) rev/min cm ³ /1000 strokes	6 Rotational-speed limit Note changed to rev/min	3a Fuel delivery characteristics rev/min cm ³ /1000 strokes	Starting fuel delivery Idle rev/min cm ³ /1000 strokes	5 Idle stop Control rod travel mm	4a Control rod travel mm
Not known. Carry out adjustment on engine.	760-780*	-	-	100 19,5-21,0 RW	- -

Checking values in brackets

* 1 mm less control rod travel than cat. 2

Test Specifications Fuel Injection Pumps 1A and Governors

WPP 001/4 KHD 30,4 b 2

1. Edition

40

PE 12 P 120 A 920 RS 294 R SUV 300-750 P 9 A 346 R

supersedes

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 066

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min		4	Lower rated speed rev/min		Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	
1	2	3	7	8	9	10	11	
ca.68	750 770 800	16,0 12,5 6,2		ca.31	300 50 300 350 400	8,0 19,0-21,0 7,7-8,3 1,4-4,2 0 - 1,0	730 400 320	0 0 1,2-1,8
2a	785 800 880	7,4-10,4 4,8-7,8 0,3-1,0	without auxiliary spring with auxiliary spring					

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limit Note changed to 1 rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
Not known. Carry out adjustment on engine.	760-770*	-	-			100	19,5-21,0 RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4f
1. Edition

En

PE12 P120 A920 RS 294

RSUV 300-1000 POA 348 R

1-10-5-7-2-11-6-8-3-12-4-9- je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes "
company KHD
engine BA 12 M 816

Komb.-Nr. 0 401 870 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)

mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0 $X=1,0$	-	-	-	ca. 18	300	5,9	1000	14,9-15,0
ca. 60	13,9	1040-1050					300	6,3-6,5	270	16,2-16,8
(2a)	4,0	1060-1090					325-385	= 2,0	400	14,9-15,0
	1190	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)	(6) Rotational-speed limit Note: changed to .. rev/min	(3a) Fuel delivery characteristics	Starting fuel delivery idle	(5) Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min
1	2	3	4	5
Not known. Carry out adjustment on engine.	1040-1050*	-	-	100

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 b1

1. Edition

En

PE12P120 A 920 RS 294

RSUV 300-750 P9 A 350

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

company

KHD
BA 12 M 816

engine

Komb.-Nr. 0 401 870 071

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)

mm (from BDC), RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
300	6,3-6,5	2,2- 2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0 $X = 4,0$	-	-	-	ca. 26	300	5,9	-	-
ca. 62 (2a)	13,9 4,0 985	790-800 820-850 0,3-1,7					300 330-390	6,3-6,5 $= 2,0$		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limit Note changed to rev/min	(3a) Fuel delivery characteristics		Starting fuel delivery Idle	(5)	(4a) Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8
Not known. Carry out adjustment on engine.	790-800*	-	-		100	19,5-21,0 mm RW	- - -

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 30,4 f1

1. Edition

PE12P120 A 920 RS 294

RSUV 300-1000 P 0 A 352 R

En

1-10-5-7-2-11-6-8-3-12-4-9 je $30^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes -

company KHD

engine BA 12 M 816

Komb.-Nr. 0 401 870 068

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke (1,95-2,15)

mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9-0,1	31,0-31,1	0,5(0,9)			
300	6,3-6,5	2,4-3,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min	Control rod travel mm 10
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
loose	800	0,3-1,0 $X = 1,0$	-	-	-	ca. 18	300	5,0	1000	14,9-15,0
ca. 60 ②a	13,9	1040-1050					300	6,3-6,5	270	16,2-16,8
	4,0	1060-1090					325-385=2,0		400	14,9-15,0
	1220	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limitat Note: changed to ... rev/min	③a Fuel delivery characteristics rev/min	Starting fuel delivery Idle	⑤ Control rod travel mm 6	④a Idle stop Control rod travel mm 8
rev/min	cm³/1000 strokes	4	cm³/1000 strokes	7	rev/min
1	2	3	5	6	8

Not known.
Carry out adjustment on engine.

1040-1050*

-

100

19,5-21,0
mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 15,2 d

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 750 P 1/9
Komb.-Nr. 0 401 946 024

supersedes -
company KHD
engine: BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
full	750 758 800	1,0-14,0 1,0-1,5 1,0	-	-	-	-	-	-	-	-
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2a. Full-load stop Test oil temp. 40°C (104°F)	6. Rotational-speed limitat Note: changed to ..	3a. Fuel delivery characteristics	Starting fuel delivery idle	4a. Idle stop
rev/min 1	rev/min 2	rev/min 3	rev/min 6	rev/min 8
Not known. Carry out adjustment on engine.	750	-	-	100
			19,5-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 15,2 c

1. Edition

En

PE 6 P 120 A 420 LS 324 RS 250/1000 P 1/422 R

Komb.-Nr. 0 401 876 221
0 401 821 001

supersedes -

company: KHD

engine: BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		Control rod travel mm	rev/min	Control rod travel mm	rev/min
1	2	3				7	8	9	10	11
loose	800	0,3-1,0	-	-	-		250	6,4	1000	14,9-15,0
	x = 5,0						260-320	= 2,0	420	16,2-16,8
VHca.58									550	14,9-15,0
FH voll	13,9	1040-1050								
(2a)	4,0	1105-1135								
	1200	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat. Note: changed to ...) rev/min	3a Fuel delivery characteristics rev/min	Starting fuel delivery Idle	5 Idle stop Control rod travel mm			
1	2	3	4	6	7	8	9
Not known. Carry out adjustment on engine.	1040-1050*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WWP 001/4 KHD 15,2 d 1

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 900 P 2/11
Komb.-Nr. 0 401 946 026

supersedes -
company: KHD
engine: BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0 - 2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
full	900	1,0-14,0	-	-	-	-	-	-	-	-	-
	910	1,0-9,0									
	920	1,0-4,0									
2a	970	1,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limitation Note: changed to ..	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
1	rev/min	2	rev/min	3	4	cm³/1000 strokes	6	7	8
	Not known. Carry out adjustment on engine.		900	-	-	-	100	19,5-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications

Fuel Injection Pumps ①A

and Governors

40

WPP 001/4 KHD 15,2 d 2

1. Edition

En

PE 6 P 120 A 420 LS 324 RZU 900 P 2/12
Komb.-Nr. 0 401 946 027

supersedes KHD
company: BA 6 M 816
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

2,0-2,1

(1,95-2,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	① Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
②a	930	4,0-8,4								
	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit†	③a Fuel delivery characteristics		Starting fuel delivery Idle	⑤	④a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
Not known. Carry out adjustment on engine.		900	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 15,2 b

1. Edition

En

PE 6 P 120 A 420 LS 324 RSV 250-1000 P7A 304 R
Komb.-Nr. 0 401 876 226

supersedes -
company: KHD
engine: BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1
(1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min Degree of deflection of control lever mm	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed 4 5 6	4	Lower rated speed Control-lever deflection in degrees 7	Control rod travel rev/min	Control rod travel mm	3	Torque control Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	x = 5,5	-	-	ca. 24	250	5,9	1000	14,9-15,0	
ca. 67	13,9	1040-1050					250	6,3-6,5	300	16,2-16,8	
(2a)	4,0	1080-1110					345-405	= 2,0	450	14,9-15,0	
	1250	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes	6	Rotational-speed limitat. Note: changed to .. rev/min	3a	Fuel delivery characteristics rev/min cm³/1000 strokes	Starting fuel delivery Idle rev/min	5	4a	Idle stop Control rod travel mm
1	2	3	4	5	6	7	8	9	
Not known. Carry out adjustment on engine.	1040-1050*	-	-		100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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D10

D10

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 15,2 a

1. Edition

En

PE 6 P 120 A 420 LS 324 R SUV 250-600 P8A 321 R
Komb.-Nr. 0 401 876 228

supersedes -
company KHD
engine BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke		2,0-2,1 (1,95-2,15)		mm (from BDC)		
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	14,9+0,1	29,6-30,0	0,5 (0,9)			
250	6,3-6,5	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	775	0,3-1,0	-	-	-	ca.26	250	5,9	600	14,9-15,0
	X = 4,0						250	6,3-6,5	270	16,2-16,8
ca.65	13,9	640-650					260-310	= 2,0	350	14,9-15,0
2a	4,0	660-690								
	800	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop Control rod travel mm
rev/min 1	cm³/1000 strokes 2	3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	9
Not known. Carry out adjustment on engine.	640-650*	-	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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DNA

D11

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 20,2 e

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 750 P 1/9

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 028supersedes:
company: KHD
engine: BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1
(1,95-2,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
full	750 758 800	1,0-14,0 1,0-1,5 1,0	-	-	-	-	-	-	-	-
2a										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat. Note: changed to ...) rev/min	3a Fuel delivery characteristics rev/min	Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	4	cm³/1000 strokes	6	8
Not known. Carry out adjustment on engine.	750	-	-	100	19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col 2

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D12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 003/4 KHD 20,2 e 1

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 900 P 2/11

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 031

supersedes
company KHD
engine BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1
(1,95-2,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel m:n	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0+0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0+0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min 10	③ Control rod travel mm 11
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm		
full	900	1,0-14,0	-	-	-	-	-	-	-	-
	910	1,0-9,0								
②a	920	1,0-4,0								
	970	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F) rev/min	⑥ Rotational-speed limitat. Note: changed to ..) rev/min	③a Fuel delivery characteristics rev/min	Starting fuel delivery Idle rev/min	⑤ Idle stop Control rod travel mm	④a Control rod travel mm
Not known. Carry out adjustment on engine.	900	-	-	100	19,5-21,0 mm RW
	3	4	6	7	8

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 20,2 e 2

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RZU 900 P 2/12

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)
Komb.-Nr. 0 401 948 033

supersedes KHD
company BA 8 M 816
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke

(1,95-2,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	12,0±0,1	20,5-21,1	0,8			
600	6,0-6,2	4,1-5,3				
600	15,0±0,1	28,6-31,0				
200	6,0-6,2	1,0-2,0				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever 1	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
full	900	14,0	-	-	-	-	-	-	-	-
	910	10,8-12,2								
(2a)	930	4,0-8,4								
	1000	1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	6 Rotational-speed limitat Note: changed to .. rev/min	3a Fuel delivery characteristics rev/min	Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
Not known. Carry out adjustment on engine.	900	-	-	100	19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

D14

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 20,2 b

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RS 250/1000 P1/422 R

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company KHD
engine BA 8 M 816
Komb.-Nr. 0 401 878 097

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control rev/min 10	Control rod travel mm 11
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
1000	800	0,3-1,0 $X = 5,0$	-	-	-		250	6,4	1000	14,9-15,0
Wde. 58							390-450	= 2,0	420	16,2-16,8
FH voll	13,9	1040-1050							550	14,9-15,0
2a	4,0	1105-1135								
	1200	0,3-1,7								
						150-200				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle	⑤	④a Idle stop Control rod travel mm 9
rev/min 1	cm³/1000 strokes 2	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	
Not known.		1040-1050 *	-	-	100	19,5-21,0	-
Carry out adjustment on engine.					mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 20,2 d

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSV 250-1000 P 7 A 304

Komb.-Nr. 0 401 878 089

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes

company: KHD

engine: BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1
Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 18	250	5,9	1000	14,9-15,0
	X = 4,25						250	6,3-6,5	300	16,2-16,8
ca. 60	13,9	1040-1050	.	.	.		340-400= 2,0		450	14,9-15,0
(2a)	4,0	1060-1090								
	1220	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limitation		3a	Fuel delivery characteristics		5	Starting fuel delivery Idle		4a	Idle stop	
	Test oil temp. 40°C (104°F)	rev/min		cm³/1000 strokes	rev/min		Note: changed to ..	rev/min		rev/min	cm³/1000 strokes		rev/min	Control rod travel mm
	Not known.	1040-1050	*	-	-				100	19,5-21,0			-	-
	Carry out adjustment on engine.									mm RW				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

D16

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 20,2 c

1. Edition

En

PE 8 P 120 A 620/4 LS 325 RSUV 250-800 P 10 A 318 R

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,50^\circ$ ($\pm 0,75^\circ$)

supersedes

company KHD

engine BA 8 M 816

Komb.-Nr. 0 401 878 091

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke

(1,95-2,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,4(0,8)			
250	6,3-6,5	2,2-2,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 21	250	5,9	800	14,9-15,0
	X = 4,0						250	6,3-6,5	300	16,2-16,8
ca. 56 2a	13,9	840-850					280-340 = 2,0		450	14,9-15,0
	4,0	870-900								
	1025	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)	8 Rotational-speed limitat. Note: changed to ... rev/min	3a Fuel delivery characteristics rev/min	Starting fuel delivery Idle	5	4a Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes
1	2	3	4	6	7
Not known. Carry out adjustment on engine.	840-850 *	-	-	100	19,5-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

Test Specifications Fuel Injection Pumps 1A and Governors

40

WP 001/4 KHD 20,2 c 1

1. Edition

En

PE 8 P 120 A 620/4 LS 325 R SUV 250-800 P 10 A 347 R

Supersedes -
company: KHD
engine: BA 8 M 816

Komb.-Nr. 0 401 878 101

1-4-7-6-8-5-2-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 17	250	5,9	800	14,9-15,0
	X = 3,0						250	6,3-6,5	300	16,2-16,8
ca. 51	13,9	840-850					280-340 = 2,0		450	14,9-15,0
(2a)	4,0	860-890								
	1025	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limit Note: changed to .. rev/min	(3a) Fuel delivery characteristics rev/mm cm³/1000 strokes		Starting fuel delivery Idle rev/min cm³/1000 strokes		(5)	(4a) Idle stop Control rod travel rev/min mm	
rev/min	cm³/1000 strokes	3	4	5	6	7		8	9
Not known.		840-850*	-	-	100	19,5-21,0 mm RW		-	-
Carry out adjustment on engine.									

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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Testoil-ISO 4113

D18

D18

① Test Specifications Fuel Injection Pumps ① and Governors

HPP 001/4 SCA 8,0 e

6. Edition

En

PE6P110 A 720 RS 393

RQV 200-1200 PA 467

Komb.-Nr. 0 401 846 424

superseded 2.82
company: Scania
engine: DN 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15)			mm (from BDC)			
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
600	12,0+0,1	8,7-8,9	0,5(0,8)	2	3	2,5+0,1 (2,2-2,9)
	7,3-7,5	1,5-1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	1	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	1
1	2	3	2a	4	5	6	4	7	8	9	3a	
max.	1200	15,2-17,8		-	-	-	ca. 16	100	min. 8,4	150	0,5-0,8	
ca. 61	11,0	1240-1250						225	6,9-7,1	500	3,6-4,2	
	4,0	1365-1395						440-500=	2,0	850	5,8-6,0	
	1500	0 - 1,0								1200	8,2	

Torque control travel a ... mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
600	87,0-89,0 (85,0-91,0)	1240-1250*		1200	99,5-102,5 (97,0-105,0)	100	150,0-200,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

Testoil-ISO 4113

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 e 1

3. Edition

En

PE6P110A 720 RS 393

RQV 250-1200 PA469

Komb.-Nr. 0 401 846 423

supersedes 2.82
company: Scania
engine: DN 801

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		3,0-3,1 (2,95-3,15)		mm (from BDC)					
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes		Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes		Spring pre-tensioning (torque-control valve) mm	
600	12,0+0,1	8,7-8,9		0,5(0,8)				2,5 ± 0,1 (2,2-2,9)	
	225	7,3-7,5	1,5-1,9	0,2(0,4)					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			Lower rated speed Degree of deflection of control lever 7	Control rod travel mm rev/min	Sliding sleeve travel mm	
			1a	2a	4				
max.	1200	15,2-17,8	-	-	-	ca. 13	100 min. 8,4	200	0,7-0,9
ca. 51	11,0 4,0 1450	1240-1250 1325-1355 0 - 1,0					225 6,9-7,1 335-395=2,0	500 800 1200	3,0-3,5 5,1-5,3 8,3
						(3a)			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	5	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
600	87,0-89,0 (85,0-91,0)	1240-1250*		1200	99,5-102,5 (97,0-105,0)	100	150,0-200,0 =20,0-21,0 mm RH	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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D20

320

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 8,0 n 1
1. Edition

En

PE 6 P 110 A 720 RS 393 RQ 750 PA 528

Kom.-Nr. 0 401 846 479

supercedes
company Scania
engine: DN 8 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1
 (2,95-3,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,0+0,1	9,0-9,2	0,5(0,8)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
-	-	-	-	11,0 4,0 850	750-755 776-789 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: 750-755 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		2	Control rod stop		3a	Fuel delivery characteristics		3b	Starting fuel delivery Idle speed		6
rev/min	cm³/-1000 strokes	1	rev/min	3	4	cm³/-1000 strokes	5	rev/min	cm³/1000 strokes/mm	6	
700	90,0-92,0 (88,0-94,0)		-	-	-	-	-	100	140,0-190,0 = 20,0-21,0 mm RW		

Checking values in brackets

6.83

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D21

D21

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 SCA 8,0 n

1. Edition

En

PE 6 P 110 A 720 RS 393 RQ 900 PA 528
Komb.-Nr. 0 401 846 480

supersedes—
company: Scania
engine: DN 8 01

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1
(2,95-3,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,0+0,1	9,4-9,6	0,5 (0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel mm	Setting point rev/min	Full-load speed regulation			Idle speed regulation			Torque control			
		1	Control rod travel mm	Test specifications rev/min	4	Setting point rev/min	Control rod travel mm	Test specifications rev/min	5	Control rod travel mm	3
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	11,0 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At 900-905 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1	2	3	4	5	6	7
850	94,0-96,0 (92,0-98,0)	-	-	-	100	150,0-200,0 = 20,0-21,0 mm RW

Checking values in brackets

6.83

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D22

D22

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 15,2 e

1. Edition

ER

PE 6 P 120 A 420 LS 399 RSV 250-1000 P 7 A 460
Komb.-N°. 0 401 876 236

supersedes⁵
company: KHD
engine: BA 6 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,0-2,1

(1,95-2,15)

mm (from BDC)

Testoil-ISO 4119

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (20,7-21,7)	0,5(0,9)			
250	6,3-6,5	2,2-2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,9	1000	14,9-15,0	
	x = 5,75						250	6,3-6,5	300	16,2-16,8	
ca. 67	13,9	1040-1050					345-405=2,0		450	14,9-15,0	
(2a)	4,0	1080-1110									
	1250	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop Test oil temp. 40°C (104°F)	6	Rotational-speed limit Note: changed to rev/min	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	rev/min	4	cm³/1000 strokes	6	7	8	9
LDA	0,7 bar Not known.	1040-1050*	-	-	-	100	19,5-21,0 mm RW	-	-
	Carry out adjustment on engine.								

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 KHD 20,2 f

1. Edition

En

PE 8 P 120 A 620/4 LS 400 RSV 250-1000 P7A 460

Komb.-Nr. 0 401 878 100

1 - 4 - 7 - 6 - 8 - 5 - 2 - 3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes
company KHD
engine BA 8 M 816

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 mm (from BDC)
(1,95-2,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,9+0,1	31,0-31,4 (30,7-31,7)	0,5 (0,9)			
250	6,3-6,5	2,2-2,8				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
Loose	300	0,3-1,0	-	-	-	ca. 24	250	5,9	1000	14,9-15,0
	x = 5,75						250	6,3-6,5	300	16,2-16,8
ca. 67	13,9	1040-1050					345-405 = 2,0		450	14,9-15,0
2a	4,0	1080-1110								
	1250	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit Note: changed to 1040 rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9
Not known. Carry out adjustment on engine.		1040-1050*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,0 c 1

5. Edition

En

PE 8 P 110 A 920/4 LS 3020 RQV 250-1000 PA 306-2 R

supersedes 83

Komb.-Nr. 0 401 848 717

company Saab-Scania
engine DS 14 01

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 - 3,4
(3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	3,5+0,1	16,2 - 16,4	0,6(0,8)			3,3 + 0,1
225	4,4-4,6	1,5 - 1,9	0,2(0,4)			(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in []

Testoil ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 61	12,5 4,0 1300	1040-1050 1150-1180 0 - 1,0	4,0	5	6	30	250 350-410=2,0	4,4-4,6 3,0-3,5	470 730 1000	3,4-3,8 5,1-5,3 7,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed characteristic intermediate speed	Fuel delivery characteristic high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	Control rod travel mm
1	2	3	4	5	6
LDA 1000	0,7 bar 162,0-164,0 (160,0-166,0)	1040-1050*	LDA 600 LDA 500	0,7 bar 165,5-168,5 (163,0-171,0) 0 bar 127,0-131,0 (125,0-133,0)	100 240,0-290,0 = 20,0-21,0 - RM

Checking values in brackets

* 1 mm less control rod travel than cat. 2

6.83

E1

BOSCH

Bosch-Rheinmetall AG, Mannheim, W-R-A, Germany
C 04 Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 30 Printed in the Federal Republic of Germany
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D. Adjustment Test for Manifold Pressure Compensator

SCA 14,0 c 1

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- dimension (1)
	bar	bar	mm
PE 8 P..LS 3020 + RQV..PA 306-2 R	0,70	0 0,45 0,32	13,5 - 13,6 12,0 - 12,1 13,1 - 13,2 12,2 - 12,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

E2

En E2

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 SCA 8,0 k

5. Edition

En

PE 6 P 110 A 720 RS 3034 RSV 350-1200 P 1/462 R
Komb.-Nr. 0 401 876 715

supersedes 2.82
company Scania
engine DS 8 05

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

^{3,3-3,4}
(3,25-3,45)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,3+0,1	12,1-12,3	0,5(0,8)			
350	5,3-5,5	1,5-1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	10	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 29	350	5,5	-	-
	x = 4,0						350	5,9-6,1		
ca. 71	11,3	1240-1250					500-560=2,0			
(2a)	4,0	1310-1340								
	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)		(8) Rotational-speed limit Note: changed to → rev/min	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5)	(4a) Idle stop Control rod travel mm	
rev/min	cm³/1000 strokes	3	rev/min	cm³/1000 strokes	6	7	8	9	
700	121,0-123,0 (119,0-125,0)	1240-1250*	1200	127,5-130,5 (125,0-133,0)	100	190,0-240,0	350	5,5	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

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6.83

E3

E3

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 d

4. Edition

En

PE 6 P 110 A 720 RS 3034 RQV 200-1200 PA 275 R

supersedes 1.83
company: Scania
engine: DS 804

Komb.-Nr. 0 401 846 709

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4

mm (from BDC)

(3,25-3,45)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	12,3+0,1	11,7-11,9	0,5 (0,8)			2,5±0,1 (2,2-2,9)
225	5,3-5,5	1,5-1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed			Control rod travel mm 6	Control rod travel rev/min 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	Sliding sleeve travel mm 11
			Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6					
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min.5,9	150	0,6-0,8
ca. 62	11,3 4,0 1500	1240-1250 1370-1400 0 - 1,0				ca. 9	225	4,4-4,6 330-390 = 2,0	500 850	3,8-4,4 5,9-6,1 8,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a		Fuel delivery characteristics 5a high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control 5 Control rod travel mm 8	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	rev/min 9	
LDA 600	0,9 bar 117,0-119,0 (115,0-121,0)	1240-1250 *	LDA	0,9 bar	100	190,0-240,0	-	-	
			1200	119,5-122,5 (117,0-125,0)		= 20,0-21,0 mm RW			
			LDA 500	0 bar 81,0-85,0 (79,0-87,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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E4

D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 d -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-dimension difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE6P..RS3034 + RQV.. PA 275 R	0,90	0 0,40 0,25	12,3-12,4 10,6-10,7 11,9-12,0 10,8-11,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

E5

En E5

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 8,0 h

4. Edition

En

PE 6 P 110 A 720 RS 3034 RQV 200-1200 PA 529

Komb.-Nr. 0 401 846 732

supersedes 5.81
company: Scania
engine: DSI 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 - 3,4
(3,25-3,45) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	12,6+0,1	12,9 - 13,1	0,5(0,8)			2,5 + 0,1 (2,2 - 2,9) **
	5,3-5,5	1,5 - 1,9	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in _____.

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	2a	4	5	4	7	8	10	11
max.	1200	15,2-17,8	-	-	-	ca. 14	100	min. 6,8	150	0,5-0,8
ca. 64	11,6	1240-1250					225	5,3-5,5	500	3,7-4,3
	4,0	1395-1425					390-450	= 2,0	850	6,2-6,4
	1150	0 - 1,0							1200	8,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	Control rod travel mm
1	2	3	4	5	6	7	8
LDA 700	0,9 bar 129,0-131,0- (127,0-133,0)	1240 - 1250*	LDA 1200	0,9 bar 134,5-137,5 (132,0-140,0)	100	190,0-240,0 = 20,0-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

Testoil-ISO 4113

E6 BOSCH

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E6

D. Adjustment Test for Manifold Pressure Compensator

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

SCA 8,0 h

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3034 + RQV..PA 529	0,90	0 0,44 0,29	12,6 - 12,7 10,5 - 10,6 12,2 - 12,3 11,2 - 11,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

E7

E7

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 SCA 8,0 o

1. Edition

En

PE 6 P 110 A 720 RS 3035 EP/RSV 350-1200 P 1/310 R

supersedes Scania
company DS 8
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	11,6+0,1	12,1-12,3	0,4(0,8)			2,5 ⁺ -0,1 (2,2-2,9) **
225	3,9-4,1	0,9-1,3	0,2(0,5) **			

Adjust the fuel delivery from each outlet according to the values in

* * In the case of greater dispersion alter the delivery-valve spring pre-tensioning according to

B. Governor Settings

Degree of deflection of control lever	1 Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees	Lower rated speed rev/min		3 Torque control rev/min	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		7	8	9	10
ca. 71	1200 1250 1300	16,0 11,9 6,3	without auxiliary spring			ca. 31	350	6,0	-	-
2a	1250 1320 1420	10,8-12, 2,4-6,0 0-1,0	with auxiliary spring				100 350 400 520	19-21 5,7-6,3 3,3-4,5 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle	5	4a Idle stop
rev/min	cm³/1000 strokes	Note: changed to rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min
1200	115,0-117,0 (112,0-120,0)	1240-1250*	600	119,0-123,0 (116,0-126,0)	100 350	200,0-250,0 9,0-13,0	- -

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.83

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 r 3

2. Edition

En

PE 6 P 110 A 720 RS 3040 RQV 200-1200 PA 379

Komb.-Nr. 0 401 846 730

superseded 4.80
company: Scania
engine: DS 11 03

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 - 3,4
(3,25-3,45) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	13,4+0,1	16,3 - 16,5	0,6(0,8)			3,3 ± 0,1 (3,0 - 3,5)
225	4,4-4,6	1,7 - 2,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1050	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 61	12,4 4,0 1550	1240-1250 1395-1425 0 - 1,0					225	4,4-4,6 310-370=2,0	500 850 1200	3,9-4,4 5,6-5,8 8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point		Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	Control rod travel mm
1	2	3	4	5	6	7	8
LDA 1200	0,9 bar 163,0-165,0 (161,0-167,0)	1240-1250*	LDA 600	0,9 bar 169,5-172,5 (167,0-175,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-
			LDA 500	0 bar 126,0-130,0 (124,0-132,0)			

Checking values in brackets

* 1 mm less control rod travel than col. 2
6.83

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E9

D. Adjustment Test for Manifold Pressure Compensator

- 2 -

SCA 11,0 r.3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3040 + RQV..PA 379	0,90	0 0,37 0,25	13,4 - 13,5 11,7 - 11,8 12,7-12,8 11,8-12,0

Notes:

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

E10

E10

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 r

5. Edition

En

PE 6 P 110 A 720 RS 3040, I...Z RQV 250-1100 PA 379 R

Komb.-Nr. 0 401 846 710

supersedes 3.83
company Scania
engine: DS 1101

Testo II ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke			3,3-3,4 (3,25-3,45)	mm (from BDC)			
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm	
1100	13,0+0,1	15,7-15,9	0,6(0,8)			3,3 ± 0,1 (3,0-3,5)	
	4,4-4,6	1,7-2,1	0,2(0,4)				

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed				Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm	①
1	2	3	②a	4	5	6	④a	7	8	9	③a	10	11	①
max.	1100	15,2-17,8	-	-	-	-	-	ca. 10	100	min. 5,9	-	200	1,0-1,2	
ca. 64	12,0	1140-1150							250	4,4-4,6	-	500	3,8-4,0	
	4,0	1250-1280							310-370 = 2,0		-	800	5,4-5,6	
	1400	0 - 1,0									-	1100	8,5	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	②b	⑤a	⑥	Control rod travel mm	⑤
1	2	3	4a	5	6	7	8
LDA 1100	0,9 bar 157,0-159,0 (155,0-161,0)	1140-1150 *	LDA 600 LDA 500	0,9 bar 161,5-164,5 (159,0-167,0) 0 bar 126,0-130,0 (124,0-132,0)	100	240,0-290,0 = 20,0-21,0 mm RW	- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

E11
BOSCH

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

SCA 11,0 r -2-

Pump/governor	Setting	Measurement	Control rod travel- diminution (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE 6 P..RS 3040 + RQV ... PA 379R	0,90	0 0,37 0,25	13,0 - 13,1 11,7 - 11,8 12,7 - 12,8 11,8 - 12,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Increased or reduced outputs of the types listed on page 1

Output variation	Output %	Fuel delivery in cm ³ /1000 strokes at pump speed (min ⁻¹) 1)					Adjustment of control-rod position from 100% setting (mm)
		1100	900	750	600		
P	120	205	208	212	214		+ 2,6
U	115	191	196	198	200		+ 1,9
R	113	186	191	192	195		+ 1,7
W	110	180	185	185	188		+ 1,3
V	108	175	179	179	183		+ 1,0
Y	105	170	173	172	177		+ 0,7
T	103	166	167	166	171		+ 0,4
S	98	154	156	156	158		- 0,2
X	95	146	149	149	150		- 0,5
Q	93	141	145	145	146		- 0,8
Z	90	134	138	139	140		- 1,1
O	88	131	134	136	137		- 1,3
N	85	124	126	130	131		- 1,6
M	80	114	115	119	121		- 2,1
L	75	105	106	108	111		- 2,6
K	70	98	98	98	99		- 3,0
J	65	89	90	90	90		- 3,4
I	60	86	84	83	80		- 3,8

1) Tolerances with fuel quantity are $\pm 1 \text{ cm}^3$ at setting speed.

With subsequent orders from KH/ALP only the standard setting according to page 1 will be delivered. If required, the above mentioned variations are to be carried out through your local BOSCH Service Station.

The delivery amounts given in the table have been compiled from Saab-Scania documentation upon their request.

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 11,0 s2

1. Edition

En

PE6P 110 A 720 RS 3065

RQ 250/1100 PA 470 R

Komb.-Nr. 0 401 846 722

supersedes
company: Scania
engine: D 11

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3-3,4

(3,25-3,45)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,3+0,1	13,6-13,8	0,4 (0,8)			2,5 ±0,1
225	5,8-6,0	0,9 - 1,3	0,2(0,4)			(2,2-2,9)
.						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
700	15,6-16,4	1100	16,0	11,3 4,0 1400	1145-1160 1215-1245 0 - 1,0	225	5,9	100 min. 7,5 225 5,8-6,0 320-380 = 2,0		-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed		6
		rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	6	
1100	136,0-138,0 (133,0-141,0)	-		600	136,0-140,0 (133,0-143,0)	100	200,0-250,0	
						225	9,0 - 13,0	
							Streug. max. 4 (8)	

Checking values in brackets

6.83

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Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 SCA 8,0 f

4. Edition

En

PE 6 P 110 A 720 RS 3067

RSV 350-1200 P 1/462 R

supersedes 1.81
Scania
company: DS 8
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,7+0,1	11,5-11,7	0,4(0,8)			2,5+0,1
350	4,4-4,6	0,7-1,1 **				(2,2-2,9) **

Adjust the fuel delivery from each outlet according to the values in
** In the case of greater dispersion alter the delivery-valve spring pre-tension
accordingly.

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0 x = 4,0	-	-	-	ca. 30	350	4,0	1200	11,7-11,8
							100	min. 20,0	380	12,9-13,5
ca. 70	10,7	1240-1250					350	4,4-4,6		
(2a)	4,0	1295-1325					475-535=2,0			
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp. 40°C (104°F)	(6) Rotational-speed limitat		(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5) Idle stop	
	rev/min 1	cm³/1000 strokes 2	Note: changed to ..) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8
1200	115,0-117,0 (112,0-120,0)	1240-1250*	600	115,0-119,0 (112,0-122,0)	100	190,0-240,0	-	-
					350	9,0-13,0 **		
					1350	4 mm RW Streug. max. 4(7)		

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.83

Testoil-ISO 4113

E15

EAS

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 SCA 14,0 e

1. Edition

En

PE 8 P 110 A 920/4 LS 3068 RSV 350-1100 P 1/463

Komb.-Nr. 0 401 878 702

1-2-7-3-4-5-6-8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)supersedes Scania
company DS 14 02
engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,25-3,45)

mm (from SDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,5+0,1	16,5-16,7	0,6(0,8)			2,5+0,1
350	6,2-6,4	1,5-1,9	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 31	350	5,5	-	-
	x = 4,0						350	5,9-6,1		
ca. 66 2a	12,5 4,0 1350	1140-1150 1220-1250 0,3-1,7					540-600	2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitation Note: changed to ... rev/min	3a Fuel delivery characteristics rev/min cm³/1000 strokes		Starting fuel delivery Idle rev/min cm³/1000 strokes		5 Idle stop Control rod travel mm
rev/min	cm³/1000 strokes	3	4	5	6	7	8
1100	165,0-167,0 163,0-169,0)	1140-1150*	600	168,5-171,5 (166,0-174,0)	100	190,0-240 =20,0- 21,0 mm RW	350 6,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

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6.83

E16

E16

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 14,0 f

1. Edition

En

PE 8P 110 A 920/4 LS 3068 RQ 750 PA 528

Komb.-Nr. 0 401 848 727

supersedes
company: Scania
engine: DS 1402

1-2-7-3-4-5-6-8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,3-3,4}
(3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1 700	2 13,5+0, 1	3 16,6-16,8	4 0,6(0,8)	2	3 16,6-16,8	6 2,5 \pm 0,1 (2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation						Idle speed regulation				Torque control	
Control rod rev/min	Control rod travel mm	Setting point		Test specifications		Control rod travel mm	Control rod travel mm	Setting point		Test specifications		Control rod travel mm	Control rod travel mm
		rev/min	Control rod travel mm	rev/min	Control rod travel mm			rev/min	Control rod travel mm	rev/min	Control rod travel mm		
-	-	-	-	12,5 4,0 850	750-755 771-784 0 - 1,0	-	-	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At 750-755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod travel mm	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
1 700	2 166,0-168,0 (164,0-170,0)	3	-	4	-	6 100	7 190,0-240,0 = 20,0-21,0 mm RW	

Checking values in brackets

6.83

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E17

E17

(2) **Test Specifications**
Fuel Injection Pumps (2)
and Governors

40

WPP 001/SCA 8,0 m 3

1. Edition

En

PE 6 P 110 A 720 RS 3076 RQ 750 PA 528

Komb.-Nr. 0 401 846 775

supersedes

company: Scania

engine: DS 840

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,3-3,4

(3,25-3,45)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	11,9+0,1	11,7-11,9	0,5 (0,8)			

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Checking of slider PRG check Control rod travel mm	1	Full-load speed regulation				Idle speed regulation				Torque control Control rod travel mm	3
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min		
-	-	-	-	10,9 4,0 850	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

750-755 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		2	Control rod stop		3a	Fuel delivery characteristics		3b	Starting fuel delivery Idle speed		6
rev/min	cm ³ /-1000 strokes		rev/min		4	cm ³ /-1000 strokes	5	rev/min	cm ³ /1000 strokes/mm	control rod travel	
700	117,0-119,0 (115,0-121,0)		-		-	-	-	100	200,0-250,0 = 20,0-21,0 mm RW		

Checking values in brackets

6.83

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 SCA 8,0 m

1. Edition

En

PE 6 P 110 A 720 RS 3076 RQ 900 PA 528

Komb.-Nr. 0 401 846 776

supersedes -

company: Scania

engine: DS8 40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

^{3,3 - 3,4}
(3,25-3,45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	11,9+0,1	12,0-12,2	0,5(0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1	Control rod travel mm 2	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	Control rod travel rev/min 11	Control rod travel mm 12
-	-	-	-	10,9 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

900-905 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7		
850	120,0-122,0 (118,0-124,0)	-	-	-	100	200,0-250,0 = 20,0-21,0 mm RW		

Checking values in brackets

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E19

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 SCA 8,0 m 2

1. Edition

En

PE 6 P 110 A 720 RS 3076 RQ 750 PA 528-1
Komb.-Nr. 0 401 846 777

supersedes
company: Scania
engine: DS I8 40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke

3,3 - 3,4
(3,25-3,45)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,6+0,1	13,2-13,4	0,5 (0,8)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min mm	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	4	Setting point rev/min	Control rod travel mm	Test specifications rev/min	5	Control rod travel rev/min mm	3
-	-	-	-	11,6 4,0 850	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

750-755 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed		6
		rev/min	cm³/-1000 strokes	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
700	132,0-134,0 (130,0-136,0)	-	-	-	-	100	200,0-250,0 = 20,0-21,0 mm RW	

Checking values in brackets

6.83

Testoil-ISO 4113

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 SCA 8,0 m 1

1. Edition

En

PE 6 P 110 A 720 RS 3076 RQ 900 PA 528-2

Komb.-Nr. 0 401 846 778

supersedes
company: Scania
engine: DS I8 40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1 850	2 12,6+0,1	3 13,4-13,6	4 0,5(0,8)	2	3	6

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Central rod travel mm	Test specifications rev/min	Setting point rev/min	Central rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	11,6 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At 900-905 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle speed
rev/min	cm³/-1000 strokes	3	4	5	6
1 850	2 134,0-136,0 (132,0-138,0)	-	-	-	100 200,0-250,0 = 20,0-21,0 mm RW

Checking values in brackets

6.83

E21

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E21

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 SCA 11,0 y 1

1. Edition

En

PE 6 P 110 A 720 RS 3115 RSV 350-1100 P 1/481

Komb.-Nr. 0 401 876 728

supersedes -
company Saab-Scania
engine DN 1101

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

^{3,3-3,4}

Port closing at prestroke (3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	②	3	4	5	6
600	11,8±0,1	11,9-12,1	0,5(0,8)			3,3±0,1 (3,0-3,5)
350	4,5-4,7	2,0-2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	① Upper rated speed rev/min		Intermediate rated speed			④ Control-lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 22	350	4,1	-	-
	X = 5,75						350	4,5-4,7		
ca. 66	10,8	1140-1150					450-510	= 2,0		
②a	4,0	1210-1240								
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)	⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ Idle stop Control rod travel mm	④a Idle stop Control rod travel mm
	rev/min	cm ³ /1000 strokes	Note changed to .. rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	
600	119,0-121,0 (117,0-123,0)	1140-1150*	1100	120,5-123,5 (118,0-126,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Ell

E22

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 y

1. Edition

En

PE 6 P 110 A 720 RS 3115 RQV 200-1100 PA 468

Komb.-Nr. 0 401 846 764

supersedes
comparab Scania
engine: DN 11 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3-3,4
(3,25-3,45)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
600	11,8+0,1	11,9-12,1	0,5(0,8)			3,3 ⁺ 0,1 (3,0-3,5)
	4,7-4,9	2,0-2,4				

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			Lower rated speed Degree of deflection of control lever 7	rev/min Control rod travel mm	Sliding sleeve travel rev/min mm	
			1a	2a	4				
Max.	1120	15,2-17,8	-	-	-	ca. 11	100 min. 6,2 225 4,7-4,9 350-410=2,0	150 470 780 1100	0 -0,3 3,6-4,2 5,6-5,8 8,3
ca. 61	10,8 4,0 1400	1140-1150 1240-1270 0 - 1,0				(3a)			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b rev/min		Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min		Starting fuel delivery idle switching point ⑥ rev/min		Torque-control travel ⑤ Control rod travel mm	
1	2	3	4a	4	5	6	7	8	9
600	119,0-121,0 (117,0-123,0)	1140-1150	1100	120,5-123,5 (118,0-126,0)	100	240,0-290,0 = 20,0-21,0 mm RW		-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 e 1
3. Edition

En

PES 6 A 80 D 410 RS 2085 Y RQV 300-1475 AB 533 DL
Komb.-Nr. 0 400 846 185

supersedes 8.82
company: Daimler-Benz
engine: OM 352

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1450	8,2-8,3	4,6 - 4,7	0,2(0,35)			
	300	6,9-7,1	1,0 - 1,6			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-	ca. 14	100 300	min. 7,5 6,9-7,1	250 660 1060 1475	0,8-1,1 3,4-3,8 5,3-5,5 8,3
ca. 60	7,2 4,0 1700	1505-1515 1560-1590 0 - 1,0				330-450				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	2	rev/min	48	rev/min	50	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1450	46,0-47,0 (44,5-48,5)		1505-1515*	800	45,5-47,5 (44,0-49,0)	100	71,5-81,5 bei 12,9-13,3 mm RW	1450 500 800 1200	8,2-8,3 9,2-9,3 8,9-9,1 8,4-8,7	

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 e 2

1. Edition

En

PES 6 A 80 D 410 RS 2085 Y

RQV 300-1475 AB 621 DL

Komb.-Nr. 0 400 846 241

supersedes
company: Daimler-Benz
engine:

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

(2,10-2,30)

mm (from BDC)

Port closing at prestroke

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (Torque-control valve) mm 6
1450	8,2-8,3	4,6-4,7	0,2(0,35)			
	300	6,5-6,7	1,2-1,6	0,2(0,3)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	6	7	8	9	10
max.	1500	15,2-17,8	-	-	-	ca. 11	100	min. 8,1	275	1,1-1,2
ca. 64	7,2	1490-1500					300	6,5-6,7	675	3,5-3,8
	4,0	1535-1565					380-500		8075	5,4-5,5
	1700	0-1,0							1475	8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	rev/min	rev/min	rev/min	Control rod travel mm
1	2	3	4	5
1450	46,0-47,0 (44,5-48,5)	1490-1500*	500	41,0-44,0 (39,5-45,5)
				100
				78,0-88,0 (75,0-91,0)
				= 13,7-14,1
				mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2
6.83

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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 OM8 4,4 c 1

1. Edition

En

PES 4 A 90 D 410 RS 2195

RQ 250/1200 AB 849 L

Komb.-Nr. 0 400 844 057

supersedes...

company: OM Brescia
engine: CO 3 D

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump SettingsPort closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	10,9+0,1	8,0 - 8,1	0,3(0,45)			
250	7,4-7,6	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel rev/min	Control rod travel mm	
700	15,6-16,3 VH=max. 46°	700	16,0	10,0 4,0	1245-1260 1335-1365	250	7,5	100 250 470-510= 2,0	min. 8,9 7,4-7,6 2,0	1200 700	10,9-11,0 10,9-11,1

Torque-control travel

on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
1200	79,5-80,5 (77,5-82,5)	500	800	74,5-77,5 (72,5-79,5)	100	min. 16,5 mm RW

Checking values in brackets

6.83

F2 BOSCH

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 0MB 4,4 C

2. Edition

En

PES 4 A 90 ^C
_D 410 RS 2195RQ 275/1300 AB 856 (1)
RQV 250-1300 AB 803 D (2)
RQV 250-1200 AB 855 D (3)supersedes 1.73
company: OM Brescia
engine: CO 3 D

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15-2,25

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery "D" cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,8 - 6,3	0,4	9	5,1 - 5,5	
	6	2,5 - 3,4		6	1,6 - 2,6	
	15	13,6 - 14,3		-	-	
200	9	3,8 - 4,6		9	1,9 - 2,9	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 275/1300 AB 856 (1)

Checking of slider PRG check Control rod travel rev/min mm	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Control rod travel rev/min mm	Control rod travel rev/min mm
1	2	3	4	5	6	7	8	9	10	11	12
700	15,7-16,3	700	16,0	1320	15,6-16,0	640	0	100	6,6-8,1	-	-
				1360	11,8-15,0			250	5,1-7,2		
				1460	0 - 8,0			400	2,0-4,2		
				1560	0			540	0		

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed		6
		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm	rev/min	
1	2	3	4	5	6	7	8	9	10
(1)			500				100	min. 16,5	
1300	82,0-84,0			800	77,5 - 80,5			mm RW	

Checking values in brackets

6.83

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F3

B. Governor Settings

RQV 250-1300 AB 803 D (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel							
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel rev/min	mm	1		
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	1		
ca. 66	1300	15,0-17,6		-	-	-		ca. 10	100	5,8-8,0	380	3,2-3,6				
	1400	8,3-13,2							200	4,4-6,6	1300	8,3				
	1500	0,8-8,0							300	0,8-4,0						
	1630	0							400	0-1,3						

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel			
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4a	5	6	7	8	9
(2)				1000	72,5-75,5	100	ca. 17,0	1300 0
1300	74,0-76,0	1320*		600	64,5-67,5		mm RW	600 0,1-0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113**B. Governor Settings**

RQV 250-1200 AB 855 D (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel							
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel rev/min	mm	1		
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	1		
ca. 66	1280	15,0-17,6		-	-	-		ca. 10	120	6,2-8,0	400	3,2-3,7				
	1600	0							250	3,7-6,0	1280	8,2				
ca. 62	1200	15,0-17,6							350	0,5-3,0						
	1300	9,0-13,2							450	0-1,2						
	1400	1,2-8,3							610	0						
	1550	0														

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel			
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4a	5	6	7	8	9
(3)				-	-		100	min. 16,0
1200	79,0-81,0	1230-1240*					mm RW	- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 o

1. Edition

En

PES 5 A 95 D 410 LS 2543 RQV 250-1100 AB 956 L
Komb.-Nr. 0 400 845 056
1-3-5-4-2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company MAN
engine: D 2565 ME
104 KW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,5-1,6
(1,45-1,65) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,0+0,1	11,1-11,3	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		3a			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	1
max.	1100	15,2-17,8		-	-	-		ca. 10	100	min. 7,5		200	0,7-0,9	
ca. 48	10,0	1140-1150							250	5,9-6,1		500	3,6-4,1	
	4,0	1170-1200										800	5,4-5,7	
	1300	0-1,0										1100	8,1	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	2b	4b	5a	5b	6	7	8	9
1100	110,5-112,5 (108,5-114,5)	1140-1150*		-	-	100	146,5-156,6 (143,5-159,6) =15,6-16,2 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

TestoII-ISO 4113

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 e

1. Edition

En

PES 6 A 80 D 410 RS 2633 RQV 300-1350 AB 1175 L

Komb.-Nr. 0 400 846 499

supersedes

company: Fiat

engine: 8060.24.661
90,5 kW

Testo II-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,2 - 2,3
(2,15-2,35) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1350	13,5+0,1	6,7 - 6,8	0,25(0,35)			
300	7,1-7,3	0,9 - 1,5	0,2 (0,3)			
800	-	C, Sp. 4u.5	0,35(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		①		
Degree of deflection of control lever	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	①	
1	2	3	②a	4	5	6	④a	7	8	9	③a	10	11
max.	1400	15,2-17,8	-	-	-	-	-	ca. 13	100	min. 9,0	250	0,5-1,1	
ca. 61	12,5	1390-1400							300	7,4-7,6	550	3,0-3,5	
	4,0	1535-1565							920	max. 1,0	1000	5,5-5,7	
									350-450		1550	10,0	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	④a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	9
LDA 1350	0,7 bar 66,5-67,5 (65,0-69,0)	1390-1400*	LDA 800	0,7 bar 59,0-61,0 (57,0-63,0)	200	70,0-80,0 (67,0-83,0)	-	-	-
			LDA 500	0 bar 39,5-41,5 (37,5-43,5)		= 15,0-15,5 mm RW			

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

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F6

D. Adjustment Test for Manifold Pressure Compensator

- 2 -

FIA 5,5 e

Test at n = 1350 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-dimension difference	
					mm	(1)
PES 6 A..RS 2633 +RQV..AB 1175 L	0,70		0,27		13,5 - 13,6	
			0,23		13,2 - 13,3	
			0		12,4 - 12,6	
					12,0 - 12,1	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MAN 11,4 b 1

1. Edition

En

PES 6 A 95 D 410 LS 2639-1 RQ 250/1100 AB 1137-7 L
Komb.-Nr. 0 400 846 524

supersedes-
company: **MAN**
engine: D 2566 MUH/MUM
176 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **1,5 - 1,6**
(1,45-1,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 Strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,6+0,1	13,5 - 13,7	0,35(0,6)			
250	6,9-7,1	0,9 - 1,5	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	4	Setting point rev/min	Control rod travel mm	Test specifications rev/min	5	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	12,6 4,0 1350	1145-1160 1255-1285 0 - 1,0	250	7,0	100 250 385-425=2,0 450	min. 7,4 6,9-7,1 max. 1,0	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At **1145-1160 min⁻¹**

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed		6
		rev/min	cm³/-1000 strokes	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
1	2	3	4	5	6	7	8	6
1100	135,0-137,0 (133,0-139,0)	-	700 500	121,0-124,0 (118,5-126,5) 121,5-125,5 (119,0-128,0)	100	95,0-105,0 = 14,4-14,6 mm RW		6

Checking values in brackets

6.83

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,5 a

1. Edition

En

PES 5 A 95 D 410 LS 2643 RQV 250-1100 AB 1187 L

Komb.-Nr. 0 400 845 077

1-3-5-4-2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes
company MAN
engine: D 2565 ME

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,5-1,6
(1,45-1,65) mm (from BDC)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,0+0,-	11,1-11,3	0,35(0,6)			
250	5,9-6,-	0,9-1,5	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		③			
Degree of deflection of control lever	rev/min	Control rod travel mm	⑯	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm	①
1	2	3	⑯	4	5	6	④	7	8	9	③	10	11	①
max.	1170	15,2-17,8		-	-	-		ca. 10	100	min. 7,4		200	0,2-0,4	
ca. 43	10,0	1140-1150							250	5,9-6,1		600	3,5-3,9	
	4,0	1175-1205							325-385=2,0			1000	6,1-6,6	
	1300	0-1,0										1175	8,7	
③														
Torque control travel a = 0,65 mm														

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	④	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	④	4	5	6	7	8	9
1100	110,5-112,5 (108,5-114,5)	1140-1150*		750	106,5-110,5	100	146,5-156,5 (143,5-159,5)	1100	11,0+0,1
				500	max. 110,5 (max. 112,5)		=16,0-16,6 mm RW	500	11,6+0,1
						250	6,5 mm RW	840	11,4+0,2
								980	11,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 a 1

1. Edition

En

PE 6 P 110 A 320 RS 141
Komb.-Nr. 0 401 846 377

RQV 250-1100 PA 371/2 R

supersedes -
company: Volvo
engine: TD 120 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,6-2,7
(2,55-2,75) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	11,3+0,1	18,1-18,3	0,4(0,8)			2,5 ± 0,1 (2,2 - 2,9)
	5,0-5,2	1,1-1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	2a	4	5	6	7	8	9	10
max.	1100	15,2-17,8	-	-	-	ca.13	100	min.6,5	200	0,7-0,9
ca.46	10,3 4,0 1300	1140-1150 1220-1250 0-1,0	3a				250	15,0-5,2	500	3,0-3,3
							320-380 = 2,0		800	5,1-5,4
									1000	7,9

Torque control travel mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1	2	3	4	5	6	7
LDA 700	0,9 bar 181,0-183,0 (178,0-185,0)	1140-1150*	LDA 700	0 bar 125,0-129,0 (123,0-131,0)	100	390,0-420,0 = 20,0-21,0 mm RW

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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F10

F10

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 a 1

- 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- diminution difference (1)
	bar	bar	mm
PE6P..RS141 + RQV..PA371-2R	0,90	0 0,50 0,22	11,3-11,4 8,8-8,9 10,7-10,8 9,3-9,5

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

F11

FM
En

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001 STE 10,0 d 1

3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 RS 157 RQV 250-550/1150 PA 140 R
Komb.-Nr. 0 401 846 370supersedes 82
company Steyr
engine: 7 FA
235 kW (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(1,95-2,15)

Port closing at prestroke

2,00-2,10

mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,2+0,1	16,9 - 17,1	0,4(0,8)			
	6,4-6,6	1,3 - 1,9				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed Degree of deflection of control lever 4			Lower rated speed Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	mm 11
			rev/min 5	mm 6	Control rod travel mm 4					
max.	1150	15,2-17,8	ca. 48	4,0	625-655	ca. 10	100 250	min. 7,9 6,4-6,6	250 650	0,9-1,0 7,4-8,5
ca. 66	11,2 4,0 1450	1190-1200 1250-1280 0 - 1,0						400-460 = 2,0	1200	8,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④		Fuel delivery characteristics ⑤a high idle speed ⑤b ④		Starting fuel delivery idle switching point ⑥		Torque-control travel Control rod travel ⑤	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	rev/min 5	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	mm 9
LDA 1150	0,9 bar 169,0 - 171,0 (166,0 - 174,0)	1190-1200*	LDA 1150	0 bar 131,0-135,0 (128,0-138,0)	100	200,0-230,0	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure
XXXXXX

STE 10,0 d 1

- 2 -

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-dimension difference	
					mm	(1)
157 + 140 R	0,38		0,90 0,30 0		12,2 - 12,3 11,7 - 11,8 10,9 - 11,1 10,7 - 10,8	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 m

6. Edition

En

PE 6 P 110 A 320 RS 273
.. RS 273-1

RQV 250-1100 PA 530

Komb.-Nr. 0 401 846 440

supersedes 11.82
company: Volvo
engine: TD 100 B
220 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,6-2,7
(2,55-2,75)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	10,0+0,1	14,8-15,1	0,4(0,75)			2,5 ± 0,1
250	5,1-5,3	1,1-1,5	0,3(0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Intermediate rated speed			Lower rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Sliding sleeve travel	
			1a	2a	4				3	10
max.	1160	15,2-17,8	-	-	-	ca. 11	100	min. 6,7	200	0,7-0,9
ca. 40	9,0 4,0 1350	1140-1150 1225-1255 0-1,0					250 310-370 = 2,0	5,1-5,3 = 2,0	500 800 1100	2,9-3,3 4,9-5,1 7,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control
rev/min	cm³/1000 strokes	2b	4a	5a	6	5
LDA 700	0,7 bar 147,5-150,5 (145,0-153,0)	1140-1150*	LDA 700	0 bar 111,0-115,0 (108,0-118,0)	100 = 12,0-12,5 mm RW	Control rod travel mm

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing
increasing pressure - in bar gauge pressure

VOL 10,0 m

- 2 -

Pump/governor	Setting	Measurement		Control rod travel-diminution difference (1)
		Gauge pressure =	bar	
PE6P..RS273 U. ..RS273-1 Ü RQV..PA530	0,70	0 0,40 0,20		10,0-10,1 8,2-8,3 9,6-9,7 8,7-8,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 f 2

2. Edition

En

PE 6 P 110 A 320 RS 273 Y RQV 250-1100 PA 238/2 R
.RS 273-1 Y
0 401 846 379

supersedes 8.81
company: Volvo
engine: TD 100 B
220 kW

Testoill-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,6 - 2,7
(2,55-2,75) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	10,0+0,1	14,8 - 15,1	0,4(0,8)	5,1-5,3	1,1 - 1,5	0,3(0,6)
250						

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1260	15,2-17,8	-	-	-	ca.11	100	min.6,6	350	1,7-2,3
ca.40	9,0 4,0 1350	1140-1150 1225-1255 0 - 1,0	4 5 6	5 6	6	ca.11	250	5,1-5,3 310-370=2,0 mm	600 1290	3,7-4,3 8,8

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point RW		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10
LDA 700	0,7 bar 147,5 - 150,5 (145,0 - 153,0)	1140-1150*	LDA 700	0 bar 111,0-115,0 (108,0-118,0)	100	20,5-21,0	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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F16

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 f 2

- 2 -

Test at n = 500 rev/min decreasing increasing pressure - in bar gauge pressure

Punip/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- diminution difference mm (1)
PE6P..RS 273 Y + ..PA 238/2R	0,7	0	10,0 - 10,1
		0,40	8,2 - 8,3
		0,20	9,6 - 9,7
			8,7 - 8,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,8h

2. Edition

En

Testoil-ISO 4113

PE 6 P 100 A 720 RS 279
Komb.-Nr. 0 401 846 442

POV 300-1100 PA 550

supersedes 10.80
company Daimler Benz
engine: OM 355
177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,75-2,95)

mm (from EDC)

RIL

9,0

- 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,7	11,7 - 11,9	0,3(0,5)			
	+0,1					
300	8,0-8,2	1,5 - 2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Intermediate rated speed Degree of deflection of control lever 4	Control rod travel mm 5	Lower rated speed Degree of deflection of control lever 7	Control rod travel mm 8	Sliding sleeve travel rev/min 10	mm 11
max.	1100	15,2-17,8		ca. 12	100	min. 9,5	300
ca. 63	11,7 4,0 1350	1140-1150 1210-1240 0 - 1,0		330-430 (3a)	300 8,0-8,2	450 1150	2,7-3,0 8,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②	Rotational-speed limitation intermediate speed rev/min ④	Fuel delivery characteristics high idle speed rev/min 5	Starting fuel delivery idle switching point rev/min 8	Torque-control travel Control rod travel rev/min 8
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	cm ³ /1000 strokes 5	rev/min 9
1100	117,0-119,0 (115,0-121,0)	1140-1150*		100 140 - 160 100-220 (80-240)

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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F18

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 14,9 b

2. Edition

En

Testoil-ISO 4113

PES 8 P 110 A 320 RS 336 RQV 275-1150 PA 625

1 - 8 - 4 - 2 - 7 - 3 - 6 - 5 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 9.82

company RVI

engine: MIVS 083530

Komb.-Nr. 0 402 048 035

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings $2,8 - 2,9$

Port closing at prestroke

(2,75-2,95)

mm (from BDC) Zyl. 5; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	13,1+0,1	15,9 - 16,1	0,4 (0,75)			
	4,5-4,7	1,6 - 2,2		0,45 (0,75)		

Adjust 1. fuel delivery from each outlet according to the values in .**B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	2a	4	5	6	7	8	10	11
max.	1180	15,2-17,8	-	-	-	ca. 11	100	min. 6,1	225	0,8-1,1
ca. 65°	10,4	1205-1215				290-405	275	4,5-4,7	535	4,1-4,6
	4,0	1325-1355							840	6,2-6,4
	1450	0 - 1,0							1150	8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 650	0,7 bar 159,0-161,0 (156,0-164,0)	1205-1215 *	LDA 1150	0,7 bar 118,0-121,0 (115,0-124,0)	100	175,0-195,0	1150	11,3+0, 650 13,1+0, 850 12,6+0, 1000 11,8+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

D. Adjustment Test for Manifold Pressure Compensator

RVI 14,9 b

- 2 -

Test at n = 500 decreasing rev/min increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure =	bar	mm (1)
PES8P..RS336 + ..PA625	0,7	0 0,28 0,23	13,1 - 13,2 11,3 - 11,4 12,6 - 12,7 11,6 - 11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 13

2. Edition

En

Testoil - ISO 4113

PES 6 P 110 A 720 LS 360 RQ 300/1100 PA 376 DR
Komb.-Nr. 0 402 046 1656 - 2 - 4 - 1 - 5 - 3
0 - 60 - 120 - 180 - 240 - 300° ±0,5° (±0,75°)

supersedes 8.81

company: MAN

engine: D 2566 MTUM

(206 kW) 280 PS - Nr. 7909

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC) Zyl. 6; RW=9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	13,3-13,4	16,1 - 16,3	0,4(0,8)			6
300	7,4-7,6	0,9 - 1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	rev/min	Control rod travel mm
600	19,2-20,8	600	20,0	12,3	1145-1160	300	7,6	100	min. 7,5	1100	13,3-13,4
VH = max. 46°				4,0	1215-1245			300	5,9-6,1	700	13,9-14,0
				1350	0 - 1,0			360-400 = 2,0		910	13,5-13,7

Torque-control travel on flyweight assembly dimension a = 0,4 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm
LDA 1100	0,7 bar 161,0 - 163,0 (158,0 - 166,0)		LDA 500	0,2 bar 124,0 - 128,0 (121,0 - 131,0)	100	215,0 - 235,0
LDA 700	0,7 bar 171,0 - 175,0 (168,0 - 178,0)		LDA 500	0 bar 117,0 - 119,0 (114,0 - 122,0)	100-170 (80-190)	

Checking values in brackets

7.83

F21

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F21

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure
XXXXXXX.

MAN 11,1 1 3

- 2 -

Pump/governor	Setting	Measurement	
	Gauge pressure = bar	Gauge pressure = bar	Control rod position mm
360 + 376 DR	0,7	0,47	13,9-14,0
		0,20	13,7-13,8
		0	12,0-12,2
			11,7-11,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MAN 11,1 q 12

1. Edition

En

PES 6 P 110 A 720 LS 375 RQ 250/1050 PA 335 DR
Komb.-Nr. 0 402 046 183

supersedes-
company: **MAN**
engine: **D 2566 MTF**
202 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1
(2,95-3,15) mm (from BDC cyl. 6; RW = 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1050	12,3+0,1	15,0-15,2	0,4(0,8)			
	250	7,0-7,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8 VH = max. 46°	600	20,0	11,3 4,0 1300	1095-1110 1155-1185 0-1,0	250	7,1	100 250 360-400 = 2,0	min. 8,7 7,0-7,2	1050 700 850 950	12,3-12,4 13,0-13,1 12,8-13,0 12,4-12,7

Torque-control travel 0,2 mm Speed regulation: At 1095-1110 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	rev/min
1	2	3	4	5	6	7	8
LDA 1050	0,7 bar 150,0-152,0 (147,5-154,5)	-	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	215,0-235,0	
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500	0 bar 111,0-113,0 (108,0-116,0)			

Checking values in brackets

7.83

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 12 - 2 -

Test at n = 500 rev/min decreasing increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- diminution difference mm (1)
PES6P..LS375 + RQ..PA335DR	0,70	0 0,32 0,20	13,0-13,1 10,9-11,0 12,8-13,0 11,4-11,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 q 3

2. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 720 LS375 RQV 250-1100 PA276DR
Komb.-Nr. 0 402 046 193

superior 8.29
company M A N - Nr. 7082
D2566 MTE
engine (220kW - 299PS)
Schlepper

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10
(2,95-3,15) mm (from BDQ) yl. 6; RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 10 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	2	3	0,4(0,8)	2	3	6
	3,1-13,2	15,9 - 16,1				
	7,3-7,5	1,1 - 1,7				
250	- - -	C, 4-5	0,4(0,7)			
500/700	- - -	C, 4-5	0,6(1,0)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm, rev/min	①	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm	①
1	2	3	②	4	5	6	④	7	8	9	③	10	11	①
max.	1100	15,2-17,8		-	-	-		ca.13	100	min.8,9	250	1,2-1,4		
ca.50	12,1	1140-1150							250	7,3-7,5	600	3,8-4,2		
	4,0	1190-1220							360-420	=2,0	140	8,0		
	1350	0 - 1,0												

Torque control travel a = _____ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min
1	2	3	4	6	8
1100	159,0-161,0 (156,0-164,0)	1140-1150*	750 500	160,0-164,0 (157,0-167,0) 164,0-168,0 (161,0-171,0)	1100 500 750
				100-170 (80-190)	3,1+0, 3,4+0, 3,3+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

G1

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G1

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 q

6. Edition

En

PES 6 P 110 A 720 LS 375 RQ 250/1100 PA 335 DR
 Komb.-Nrn. 0 402 046 179, 0 402 046 211,
 0 402 046 175

supersedes 8.81
 company: MAN
 engine: D 2566 MT(F)
 206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

3,0-3,1

Port closing at prestroke

(2,95-3,15)

mm (from BOC Zyl. 6; RW = 9,0 - 12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,4+0,1	14,7-14,9	0,4(0,8)			
250	7,3-7,5	1,0-1,6	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	3	4	5	7	8	9	10	11	12		
600 VH = max. 46°	19,2-20,8	600	20,0 11,4 4,0 1350	1145-1160 1190-1220 0-1,0	250	7,4	100 250 355-395 = 2,0	min.8,9 7,3-7,5	1100 700 940 1015	12,4-12,5 13,3-13,4 12,9-13,1 12,5-12,8	

Torque-control travel
on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
1	2	4	5	6	7			
LDA 1100	0,7 bar 147,0-149,0 (144,0-152,0)	-		LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0	
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)			LDA 500	0 bar 111,0-113,0 (108,0-116,0)			

Checking values in brackets

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-dimension difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PES6P..LS375 + RQ..PA335DR	0,32	0,70 0 0,20	12,6-12,7 13,3-13,4 11,3-11,4 11,8-12,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1q5

2 Edition

En

Testoil-ISO 4113

PES 6 P 110 A 720 LS 375 RQV250-1050 PA 373 DR
 Komb.-Nr. 0 402 046 210
 6 - 2 - 4 - 1 - 5 - 3
 0 - 60 - 120 - 180 - 240 - 300 $\pm 0,50$ (0,75)

supersedes 2.80
 company: MAN
 engine: D2566 MTF
 202,3 kW(275 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10 (2,95-3,15) mm (from BDC cyl. 6)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12,0-12,1	14,8 - 15,0	0,4(0,8)			
250	6,8-7,0	1,1 - 1,7	0,4(0,7)			
700/500	-	C, Sp. 4 u. 5	0,6(1,0)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			Control rod travel mm 4	Control rod travel mm 5	Control rod travel mm 6	Lower rated speed			Control rod travel mm 7	Control rod travel mm 8	Control rod travel mm 9	Sliding sleeve travel mm 10	Sliding sleeve travel mm 11
			Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6				Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9					
max.	1050	15,2-17,8	-	-	-	ca. 16	100	min. 8,5	300	1,0-2,0						
ca. 67	11,1 4,0 1400	1090-1100 1205-1235 0 - 1,0				(3a)	250	6,8-7,0	600	4,0-4,2	520-580=2,0	100	8,3			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	rev/min 5	cm³/1000 strokes 6	rev/min 7	cm³/1000 strokes 8	rev/min 9	Control rod travel mm
LDA 1050 700	0,7 bar 148,5-150,5 (146,0-153,0) 153,0-157,0 (150,0-160,0)	1090-1100*	LDA 500	0,2 bar 124,0-128,0 (121,0-131,0) 0 bar 111,0-113,0 (108,0-116,0)	100 250 100-	215,0-235,0 (211,0-239,0) 11,0- 17,0 70(80-190)	1100 850 700	2,0-12,1 2,2-12,4 2,6-12,7	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 5 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-dimension difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
375 + 373 DR	0,70	0,32	12,6 - 12,7
		0,20	12,3 - 12,4
		0	11,4 - 11,6
			10,9 - 11,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

G5

GS
n

① **Test Specifications**
Fuel Injection Pumps ① WPP 001/4 MAN 11,1 q 8
and Governors 2. Edition

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 508

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

En superseded 11.82
MAN company: D 2566 MKF
engine: 235 kW (320 PS)
Komb.-Nr. 0 402 046 276
0 402 046 207

Testo II-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		3,0-3,1 (2,95-3,15)	mm (from BDC)	Zyl. 6 - RW 9,0-12,0 mm		
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
750	13,1+0,1	21,7-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
	Control rod travel mm	rev/min	Control rod travel mm	Degree of deflection of control lever 4	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	mm
max.	1140	15,2-17,8	-	ca.11	100	min.7,9	200	0,6-0,8	250	6,3-6,5
ca.64	10,3 4,0 1350	1140-1150 1220-1250 0 - 1,0	- -	ca.11	385-445 = 2,0	2,0	800 1100	5,9-6,1 8,5	500	4,3-4,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	Control rod travel mm
LDA 750	1,0 bar 217,0-220,0 (214,0-223,0)	1140-1150*	LDA 500	0,34 bar 145,0-150,0 (142,0-153,0)	1100 750 860 985
LDA 1100	1,0 bar 180,0-185,0 (177,0-188,0)		LDA 500	0 bar 101,0-104,0 (98,0-107,0)	11,3+0,1 13,1+0,1 12,6+0,2 11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

G6

G6

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,1 q 8

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-		diminution difference
					mm	(1)	
PES 6 P..LS 388 + RQV.. PA 508	0,34		1,0 0 0,61		10,9-11,0 13,1-13,2 9,4-9,5 12,5-12,9		

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

G7

En 57

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 q 13

1. Edition

En

PES 6 P 120 A 720 LS 388 RQV 250-1100 PA 671
 Komb.-Nr. 0 402 046 274, 0 402 046 275

supersedes
 company MAN
 engine: D 2566 MK(F)
 206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1
 (2,95-3,15) mm (from BDC) 1. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
750	11,4+0,1	17,7-18,1	0,5(0,9)			
250	6,2-6,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	①	
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
max.	1140	15,2-17,8	-	-	-	-	ca. 11	100	min.7,8	300	,5-1,8		
ca. 63	9,2 4,0 1350	1140-1150 1205-1235 0-1,0						250	6,2-6,4 385-445=2,0	850 1100	5,8-6,0 8,1		

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	②b	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	control rod travel mm
LDA	0,7 bar	1140-1150*	LDA	0,31 bar	100	215,0-235,0	750	11,4+0,	
750	177,0-181,0 (174,0-184,0)		500	134,0-140,0 (131,0-143,0)		(211,0-239,0)	1100	10,2+0,	
LDA	0,7 bar		LDA	0 bar			860	11,0+0,	
1100	166,0-172,0 (162,5-175,5)		500	102,0-106,0 (99,0-109,0)			990	10,4+0,	

Checking values in brackets

* 1 mm less control rod travel than col. 2

TestOil ISO 4113

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E9

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D. Adjustment Test for Manifold Pressure Compensator

-2-

MAN 11,1 q 13

Test at n = 500 rev/min decreasing increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS 388 + RQV..PA 671	0,70	0 0,31 0,43	11,4-11,5 9,2-9,3 10,3-10,4 10,9-11,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

G9

En G9

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 g2

1. Edition

En

PE 6 P 110 A 320 RS 413 X RQV 250-1200 PA 499
Komb.-Nr. 0 401 846 470

supersedes—
company: Volvo
engine: TD 70 FC

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1
(2,95-3,15) mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	12,4+0, 5	12,7-12,9	0,4(0,8) 0,3(0,6)			2,5+0,1 (2,2-2,9)
250	5,2-5,4	1,6-2,0				

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm	
1	2	3	1a	4	5	4	7	8	10	11	
max.	1200	15,2-17,8	-	-	-	ca. 9	ca. 9	100	min.6,7	200	0,6-0,8
ca. 62	11,4 4,0 1500	1240-1250 1370-1400 0-1,0	2a	5	6	3a	8	250 440-500=2,0	5,2-5,4	530 870 1200	3,1-3,5 5,6-5,9 7,9

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	control rod travel mm
LDA 700	0,9 bar 126,5-128,5 (123,5-131,5)	1240-1250*	4a	LDA 700	0 bar 78,0-81,0 (75,0-84,0)	100	160,0-200,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

VOL 7,0 g 2

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- diminution difference (1)
	bar	bar	mm
PE 6 P..RS 413X +RQV..PA 499	0,56	0,90 0 0,33	12,0-12,1 12,4-12,5 9,9-10,0 10,7-10,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

G11

En G11

① Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 BRE 9,6a

2. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 320 RS 421 RQV 300 - 1500 PA 500

Komb.-Nr. 0 401 846 441

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 5.81

company: Breda

engine ID 32/6

A. Fuel Injection Pump Settings

Port closing at prestroke 3,5 - 3,6 (3,45-3,65) mm (from EDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	10,0+0,1	14,6 - 14,9	0,5(0,9)			
300	7,1-7,3	1,4 - 2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	Control rod travel mm		Degree of deflection of control lever	Control rod travel mm		Degree of deflection of control lever	Control rod travel mm		Torque control travel mm	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1500	15,2-17,8	-	-	-	ca. 14	100	min. 8,7	200	0,8-1,1
	1750	0 - 1					300	7,1-7,3	600	3,5-3,7
ca. 62	9,0	1540-1550					335-450		1100	5,8-6,0
	4,0	1625-1655							1500	9,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Maximum rotational-speed Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm
1500	146,0-149,0 (143,0-152,0)	1540-1550*	-	-	100	19,5-21 mm RW	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

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② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MB 11,4 h

4. Edition

En

PES 6 P 110 A 820 LS 422 RQ 300/1100 PA 327-1
Komb.-Nr. 0 402 046 218

supersedes 10.82
company: Daimler-Benz
engine: OM 407
147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1

(2,95-3,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	10,6+0,1	10,3-10,5	0,4(0,8)			
300	8,2-8,4	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				4	Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min		Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Control rod travel mm	3
600	13,0-14,0	600	13,5	9,6 4,0 1350	1145-1160 1175-1205 0-1,5	300	6,1	100 300 350-390=2,0	6,0-6,2	min.7,5 1145-1160 min ¹	-	-

Torque-control travel
on flyweight assembly dimension a = - mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		3a	Fuel delivery characteristics		3b	Starting fuel delivery idle speed		6
		rev/min	cm³/-1000 strokes		rev/min	cm³/-1000 strokes		rev/min	cm³/1000 strokes/mm	
1100	103,0-105,0 (100,0-108,0)	500	500	500	73,0-77,0 (70,0-80,0)	100	100	130,0-150,0 (126,0-154,0)	130,0-150,0 (126,0-154,0)	7

Checking values in brackets

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7.83

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G13

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MB 11,4 h 2

1. Edition

En

PES 6 P 110 A 820 LS 422 RQ 300/1100 PA 681
Komb.-Nr. 0 402 046 269

supersedes Daimler-Benz
company OM 407
engine: 147 kW

TestOil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,0-3,1)
(2,95-3,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	10,6+0,1	10,3-10,5	0,4(0,8)			
300	8,0-8,2	1,4-2,0	0,4(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications	rev/min	Setting point rev/min	Control rod travel mm	Test specifications	rev/min	Control rod travel mm	rev/min
600	13,0-14,0	600	13,5	9,6 4,0 1350	1145-1160	300	6,1	100 300 350-390=2,0	min.7,5 6,0-6,2	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

1145-1160 min⁻¹

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	rev/min	Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed		Control rod travel mm
		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1100	103,0-105,0 (100,0-108,0)	500	500	78,0-82,0 (75,0-85,0)		100	130,0-150,0 (126,0-154,0)		6

Checking values in brackets

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E14

G14

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 K 4

1. Edition

En

PE 6 P 11U A 320 RS 423 Z RQV 250-1200 PA 435

Komb.-Nr. 0 401 846 487

supersedes
company Volvo BM

engine: TD 70 G
157 KW (213 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1

Port closing at prestroke

(2,95-3,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,2+0,1	11,3-11,5	0,4(0,8)			
250	4,5-4,7	1,1-1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm 3	Intermediate rated speed Degree of deflection of control lever 4	Control rod travel mm 5	Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	Control rod travel mm 8	Control rod travel mm 9	Sliding sleeve travel 1	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca.10	100	min.6,0	200	1,1-1,4	
ca. 65	10,2 4,0 1400	1240-1250 1320-1350 0 - 1,0				290-420	250	4,5-4,7	530 870 1200	3,5-3,7 5,2-5,3 7,9	

Torque control travel a = mm:

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2	Rotational-speed limitation intermediate speed 3	Fuel delivery characteristics high idle speed 5a	Starting fuel delivery idle switching point 6	Torque-control travel Control rod travel mm 5
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 6	rev/min 8
LDA 700	0,7 bar 113,0-115,0 (110,0-118,0)	1240-1250 *	LDA 1000 LDA 700	0,7 bar 114,0-118,0 (111,0-121,0) 0 bar 78,0-81,0 (75,0-84,0)

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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G15

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

VOL 7,0 K 4 - 2 -

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel-dimension mm (1)
PE 6P..RS423 Z + RQV.. PA 435	0,35		0,70 0 0,26		10,4-10,5 11,2-11,3 9,5-9,6 9,8-10,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7,0 k 1

3. Edition

En

PE 6 P 110 A 320 RS 428 RQV 335-1100 PA 435
Komb.-Nr. 0 401 846 446

supersegs 83
company Volvo
engine: TD 70 G
138 kW (188 PS)

Testbill-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke		3,0 - 3,1 (2,95-3,15)		mm (from BDC)			Spring pre-tensioning (torque-control valve) mm 6
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes		
700	10,7+0,1	9,9 - 10,1	0,4(0,8)				2,5 ± 0,1 (2,2-2,9)
	4,5-4,7	1,1 - 1,5	0,3(0,6)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
max.	1100	15,2-17,8	-	-	-	-	ca. 11	100	min. 7,0	300	1,4-1,6
ca. 64	9,7 4,0 1300	1140-1150 1210-1240 0-1,0	2a	4	5	6	3a	335 450-510 = 2,0	14,5-4,7 2,0	500 800 1100	3,2-3,5 5,0-5,2 7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA	0,75 bar	1140-1150 *	LDA	0 bar		100	150,0-180,0	-	-
700	99,0-101,0 (96,0-104,0)		700	78,0-80,0 (75,0-83,0)		335	11,0-15,0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

7,83

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D. Adjustment Test for Manifold Pressure Compensator

VOL 7,0 k 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- diminution mm (1)
PE6P..RS 423 + ..PA 435	0,75		0		10,7 - 10,8
			0,17		9,5 - 9,6
			0,09		10,4 - 10,5
					9,8 - 10,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9,6 b

2. Edition

2.

Testoil-ISO 4113

PES 6 P 110 A 820 RS 424 RQV 275-1300 PA 572
Komb.-Nr. 0 402 046 224

supersedes 5.82
company Unic (IVECO)
engine: 8220-02
148 kW (201 PS)

3.82

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,2-2,3

Fert closing at prestroke

(2,15-2,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1300	9,8-9,9	9,3 - 9,6	0,4(0,75)			
275	4,9-5,1	1,5 - 2,0	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1	
1	2	3	2a	4	5	6	7	8	9	3	10	11
max.	1330	15,2-17,8		-	-	-	ca.11	100	min.6,5	250	1,1-1,3	
ca. 60	8,8 4,0 1550	1340-1350 1415-1445 0 - 1,0					285-380	275	4,9-5,1	600 950 1300	3,9-4,1 5,5-5,7 8,2	
							(3a)					

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limita ^b tion intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	2b	4a	5a	6	5
1	2	3	4	5	6	7
1300	93,0 - 96,0 (90,5 - 98,5)	1340-1350*	-	-	100 160,0-180,0 (156,0-184,0)	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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② **Test Specifications**
Fuel Injection Pumps ②
and Governors

40

RPP 001/4 MAN 11,4 a 1

1. Edition

En

PES 6 P 120 A 320 LS 429

RQ 250/1100 PA 659

supersedes

company MAN

engine: D 2566 MKUL
235 kW (320 PS)

Komb.-Nr. 0 402 046 264

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1
(2,95-3,15) mm (from BDC)
Zyl. 6 - RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,0+0,1	22,0-22,4	0,5(0,9)			
250	7,5-7,7	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel mm	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications	4	Setting point rev/min	Control rod travel mm	Test specifications	5	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8 VH = 46°	600	20,0	11,5 4,0 1300	1145-1160 1190-1220 0 - 1,0	250	7,6	100 250 355-395 = 2,0	min. 9,1 7,5-7,7 = 2,0	1100 750 925 1005	12,5-12,6 14,0-14,1 13,7-13,9 12,8-13,1

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

1145-1160 min⁻¹

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	3	rev/min	cm³/-1000 strokes	5	rev/min	cm³/1000 strokes/mm
LDA 750	1,0 bar 220,0-224,0 (217,0-227,0)	-		LDA 500	0,29 bar 138,0-144,0 (135,0-147,0)		100	215,0-235,0
LDA 1100	1,0 bar 185,0-191,0 (182,0-194,0)			LDA 500	0 bar 115,0-119,0 (112,0-122,0)			

Checking values in brackets

7.83

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,4 a 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- mm (1)	diminution difference
PES6 P.. LS 429 + RQ .. PA 659	1,0	0 0,29 0,58	14,0-14,1 10,8-10,9 11,7-11,8 13,4-13,8	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 a 2

1. Edition

En

PES 6 P 120 A 320 LS 429 RQV 250-1100PA 676

Komb.-Nr. 0 402 046 285

supersedes
company: MAN
engine: D 2566 MKUL
235 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings Zyl. 6

3,0 - 3,1

Port closing at prestroke

(2,95-3,15)

mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	14,0+0,1	22,0-22,4	0,5(0,9)			
250	7,5-7,7	1,2-1,8	0,8(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8		-	-	-	ca. 13	100	min. 9,1	300	1,5-1,7
ca. 64	11,5	1140-1150						250	7,5-7,7	800	5,4-5,6
	4,0	1230-1260								1100	8,1
	1350	0 - 1,0					385-510				
							3a				

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)			Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel		
rev/min	cm³/1000 strokes	2	4a	rev/min	4b	rev/min	5a	rev/min	cm³/1000 strokes	6	5
1	2	3		4	5	6	5b	7	8	8	9
LDA	1,0 bar		1140-1150*	LDA	0,29 bar	100	215,0-235,0	750	14,0+0,1		
750	220,0-224,0			500	138,0-144,0		(135,0-147,0)	(211,0-239,0)	1100	12,5+0,1	
	(217,0-227,0)									860	13,6+0,2
LDA	1,0 bar			LDA	0 bar					985	12,8+0,3
1100	185,0-191,0			500	115,0-119,0						
	(182,0-194,0)				(112,0-122,0)						

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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D. Adjustment Test for Manifold Pressure Compensator

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

MAN 11,4 a 2

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- diminution mm (1)
PES 6 P..LS 429 + RQV..PA 676	1,0	0 0,29 0,58	14,0 - 14,1 10,8 - 10,9 11,7 - 11,8 13,4 - 13,7

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

(2) **Test Specifications
Fuel Injection Pumps (2)
and Governors**

40

WPP 001/4 MB 9,5 a 4

2. Edition

En

PES5P110A820 LS 434

RQ300/1100 PA 327-4

supersedes 1.83

Komb.-Nr. 0 402 045 023

company: Daimler-Benz

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,50^\circ$ ($\pm 0,75^\circ$)

engine: OM 409

135 kW (184 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$
($2,95-3,15$) mm (from BD) \downarrow 1. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	5
1100	$10,4+0,1$	11,0-11,2	0,4(0,8)			
300	$7,0-7,2$	1,2 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	4	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	5	Control rod travel rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	13,8-14,6	600	14,2	9,4 4,0	1145-1160 1175-1205	300	7,1	100 300	min.10,0 7,0-7,2 $375-415=2,0$	-	-

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At $1145-1160 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	4	5	6	7	6	7
1100	110,0-112,0 (107,5-114,5)	-		600	94,0-98,0 (91,0-101,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

7.83

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 9,5 a 3
2. Edition

En

PES 5 P 110 A 820 LS 434 RQV 300-1100 PA 594-1

Komb.-Nr. 0 402 045 024

1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 83

company Daimler Benz

engine OM 409

135 kW (184 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1
(2,95-3,15)

mm (from BDC) Zyl. 5

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	11,0+0,1	11,0-11,2	0,4(0,8)			
	8,1-8,3	1,2-1,8				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
max.	1150	15,2-17,8	-	-	-	-	-	ca. 34	100	min. 9,5	250	1,0-1,3	
ca. 64	10,0 4,0 1300	1140-1150 1175-1205 0 - 1,0	②a	4	5	6	⑤	320-435	300	8,0-8,2	530 820 1100	3,9-4,2 5,5-5,8 8,2	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	⑥	Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1100	110,0-112,0 (107,0-115,0)	1140-1150*	600	90,0-94,0 (88,0-96,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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② **Test Specifications
Fuel Injection Pumps
and Governors**

40

WPP 001/4 MB 11,4 L 1
3. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 820 LS 442 RQ 300/1100 PA 327-2
Komb.-Nr. 0 402 046 228

supersedes 1.83
company Daimler-Benz
engine OM 407 h
177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,2 - 3,3$
($3,15 - 3,35$) mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,5 - 12,7	0,4(0,8)			
	7,7-7,9	1,3 - 1,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point rev/min 1	Control rod travel mm 2	Control rod travel mm 3	Setting point rev/min 4	Test specifications Control rod travel mm 5	Setting point Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications Control rod travel mm 9	Control rod travel mm 10	Control rod travel rev/min 11	Control rod travel mm 12
600	13,0-14,0	600	13,5	10,3 4,0 1350	1145-1155 1180-1210 0 - 1,5	300	7,8 300 365-405 =	100 7,7-7,9 2,0 mm	min. 9,4 7,7-7,9	-	-

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At 1145 - 1155 min ⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /100 strokes 7	
1100	12,0 - 127,0 (122,0 - 130,0)	-	600	110,0 - 114,0 (107,0 - 117,0)	100	130,0 - 150,0	

Checking values in brackets

7.83

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H2

H2

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,4 1 5

2. Edition

En

Testoil-ISO 4113

PES 6 P 110 A 820 LS 442 RQ 300/1100 PA 327-5
 Komb.-Nr. 0 402 046 234

supersedes 6.82
 company: Daimler-Benz
 engine: OM 407
 162 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
 (3,15-3,35) mm (from BDC) cyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,0±0,1	11,7-11,9	0,4(0,8)			
300	7,3-7,5	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation						Idle speed regulation						Torque control	
		Setting point		Test specifications		Setting point		Test specifications		Control rod travel mm		Control rod travel mm		Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				3
600	13,0-14,0	600	13,5	10,0 4,0 1300	1145-1160 1180-1210 0-1,0	300	7,4	100 300 365-405=	min.8,7 7,3-7,5 2,0	-	-				3

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop			Fuel delivery characteristics			Starting fuel delivery Idle speed			6	
		rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	4	rev/min	cm ³ /1000 strokes/mm	6	7	
1	2						4	5				
1100	117,0 - 119,0 (114,0 - 122,0)			500	600	101,0 - 105,0 (98,0 - 108,0)			100	130,0 - 150,0 (126,0-154,0)		

Checking values in brackets

7,83

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H3

H3

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MB 11,4 1 7

1. Edition

En

PES 6 P 110 A 820 LS 442

RQ 300/1100 PA 681-1

Komb.-Nr. 0 402 046 290

supersedes--

company: Daimler-Benz

engine: OM 407 h
177 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,2-3,3

Port closing at prestroke

(3,15-3,35)

mm (from BDC)

Rotational speed rev/r.in 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,5-12,7	0,4(0,8)			
300	7,7-7,9	1,3-1,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1	Setting point Control rod travel mm 3	Full-load speed regulation			Idle speed regulation			Torque control Control rod travel rev/min 11			
		Setting point Control rod travel mm 4	Test specifications Control rod travel mm 5	Setting point Control rod travel mm 6	Setting point Control rod travel mm 7	Test specifications Control rod travel mm 8	Control rod travel mm 9				
600	13,0-14,0	600	13,5	10,3 4,0 1350	1130-1140 1165-1195 0-1,5	300	7,8	100 300 365-405 = 2,0	min.9,4 7,7-7,9 = 2,0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

1130-1140 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min 3	Fuel delivery characteristics		Starting fuel delivery Idle speed Control rod travel rev/min 6	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1100	125,0-127,0 (122,0-130,0)	-	600	110,0-114,0 (107,0-117,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

7.83

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 10,3 a

1. Edition

En

PE 6 P 110 A 720 RS 453

RQV 425-1000 PA 438-1

Komb.-Nr. 0 401 846 475

supersedes

company: Unic-IVECO

engine: 3205-03-500

129 kW (175 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Point closing at prestroke		2,0-2,1 (1,65-2,15)		mm (from BDC)		
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	10,0+0,1	9,9-10,1	0,4 (0,8)			
	425	6,9-7,1	2,1-2,7			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	4	7	8	10	11
max.	1160	15,2-17,8	-	-	-	ca. 15	100	min.8,5	400	1,5-1,6
ca .55	9,0	1040-1050					425	6,9-7,1	600	3,7-4,3
	4,0	1150-1180					420-515		800	5,8-6,1
	1300	0-1,0							1000	7,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point	6	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	8
1000	99,0-101,0 (96,0-103,0)	1040-1050*	-	-	100	19,5-21,0 mm RW	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Testoil-ISO 4113

H5

(2) Test Specifications Fuel Injection Pumps (2) and Governors

40

WPP 001/4 MB 9,6 a
8. Edition

Testoil-ISO 4113

PE 6 P 100 A 320 LS 805

RQ 300/1250 PA 187 R (1)

supersedes 10.80
company: Daimler Benz
engine: OM 401

ROV 300-1250 PA 227 R (2)

6 - 3 - 5 - 2 - 4 - 1
0 -45 -120-165-240-285 ±0,5°(±0,75°)

En

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,40-3,50) mm (from BDC) Zyl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	11,0+0,1	10,6 - 10,8	0,3(0,6)			6
	7,9-8,1	1,9 - 2,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ..187 R (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel mm					
rev/min	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min	rev/min
1	2	3	4	5	6	7	8	9	10	11	12

650	13,8-14,6	650	14,2	10,0	1295-1310	300	8,0	100	min. 9,5	1250	11,1-11,2
1450	0 - 1			4,0	1330-1360			300	7,9-8,1	600	11,1-11,3
								420-450 =2,0	500		
								0 - 1			

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	Control rod travel mm
1	2	3	4	5	6	7	6
(1) 1250	107,0 - 109,0 (105,0 - 111,0)	600	600	85,0 - 90,0 (83,0 - 92,0)	100	110 - 130	
					1355	Streug. max. 4 (6)	

Checking values in brackets

7.83

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B. Governor Settings

RQV..227 R (2)

MB 9,6 a

- 2 -

1

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 12	100	min.9,5		
ca. 66	10,0 4,0 1450	1290-1300 1330-1360 0 - 1,0				ca. 12	300	7,9-8,1		
						325-450				
						(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery		Rotational-speed limitation		Fuel delivery characteristics		Starting fuel delivery		Torque-control travel	
Control-rod stop	Test oil temp. 40°C (104°F)	intermediate speed	rev/min	high idle speed	rev/min	idle switching point	rev/min	Control rod travel	rev/min
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	5	rev/min	cm³/1000 strokes	mm	mm
(2) 1250	106,0-108,0 (104,0-110,0)	1290-1300*	600	83,0 - 88,0 (80,0 - 92,0)	100	110 - 130	100-250 (80-270)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

-

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

decreasing rev/min increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel-dimension difference
	Gauge pressure = bar	Gauge pressure = bar	mm

En

H7

H7

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 16,0 i

4. Edition

En

PE 10 P 100 A 320 LS 811 RQV 300-1250 PA 227 R

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315 ° ± 0,5 ° (± 0,75 °)

supersedes 2.83
company: Daimler-Benz
engine: OM 403
Komb.-Nr.
0 401 849 136

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,4-3,5 mm (from BDC) Zyl. 10

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	10,3+0,1	10,0-10,2	0,3(0,6)			
300	7,4-7,6	1,8-2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
			Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca. 12	100 300	min. 9,0 7,4-7,6	250 580 920 1250	0,7-1,0 3,4-3,7 5,2-5,6 8,0
ca. 66	9,3 4,0 1450	1290-1300 1330-1360 0 - 1,0				350-550 3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a		Fuel delivery characteristics high idle speed 5a 5b		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel 5 rev/min mm 8 9	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	rev/min 5	cm³/1000 strokes 6	rev/min 8	cm³/1000 strokes 7	rev/min 8	cm³/1000 strokes 9
1250	100,0-102,0 (98,0-104,0)	1290-1300 *	600	78,0-83,0 (76,0-85,0)	100	120,0-140,0			

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 19,1 i

2. Edition

En

Testoil-ISO 4113

PE 12 P 110 A 320 LS830 RQ 1150 PA310R

Komb.-Nr. 0 401 840 050

12 - 1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7
0 - 45 - 60 - 105 - 120 - 165 - 180 - 225 - 240 - 285 - 300 - 345°

supersedes 78

company Daimler-Benz

engine OM 404 A

386kW - 525PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Point closing at prestroke (3,20-3,30) mm (from BDC) Zyl. 12

Rotational speed rev/min	Control rod travel mm	Fuel delivery m.310R(1) cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	12,9 +0,1	14,0 - 14,2	0,4(0,8)			
300	8,0-8,2	1,1 - 1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [] .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
ca. 26	11,9 5,9 1300	1160-1165 1205-1215 0 - 1	②a	4	5	6	④	7	8	9	③	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics High idle speed		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min
1100	140,0-142,0	1160-1165	4	5	100 110,0-130,0 1210 5,8-6,0mmRW Streug.max.6(9)	8

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

② **Test Specifications
Fuel Injection Pumps
and Governors**

40

WPP 001/1 MB 19,1i2

2. Edition

En

Testoil-ISO 4113

PE 12 P 110 A 320 LS 830 RQ 1100 PA 440 R
Komb.-Nr. 0 401 840 070
12 - 1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7
0 - 45 - 60-105-120-165-180-225 -240 -285-300-345 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 3.81
company Daimler-Benz
engine OM 404
320 kW (435 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,20-3,30) mm (from BDC) Zyl. 12 ; RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1050	12,7+0,1	13,1 - 13,3	0,4(0,8)	2		
	300	7,3-7,5	1,3 - 1,9			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
-	-	-	-	11,7 6,3	1120-1125 1160-1170	-	-	-	-	-	-
1300	0 - 1,0										

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At 1120 - 1125 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery	
rev/min	cm³/-1000 strokes	rev/min		rev/min	cm³/-1000 strokes	rev/min	cm³/100 strokes	
1030	131,0 - 133,0 (128,0 - 136,0)	-	-	-	-	100	130,0 - 150,0 (126,0-154,0)	

Checking values in brackets

7.83

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H10

H10

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9 d

3. Edition

En

Testoil-ISO 4113

PE 12 P 110 A 520 LS 839 RQV 250-1150 PA 439 R

supersedes 82

company MAN

engine D 2542 MTE

386 kW (525 PS)

Komb.-Nr. 0 401 840 057

1 - 5 - 9 - 8 - 3 - 4 - 11 - 10 - 2 - 6 - 7 - 12

0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315° ± 0,5° (- 0,75°)

2,82

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1
(2,95-3,15)

mm (from SOC) Zyl. 12; RW=9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	12,3+0,1	14,3 - 14,5	0,4(0,8)			
250	6,8-7,0	1,4 - 2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed Degree of deflection of control lever Control rod travel mm	1 2 3	Intermediate rated speed			Lower rated speed			Sliding sleeve travel 1 2 3 4 5 6 7 8 9 10 11
		Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	
max.	1150	15,2-17,8	-	-	-	ca.11	100 250	min. 7,5 5,9-6,1
ca.66	11,3 4,0 1450	1190-1200 1320-1350 0 - 1,0					470-530=2,0mm	200 550 850 1150
								0,6-0,8 3,5-3,9 5,8-6,1 8,1

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed rev/min	Fuel delivery characteristics high idle speed rev/min	Starting fuel delivery idle switching point rev/min	Torque-control travel Control rod travel rev/min
1	2	3	4	5	6
LDA 1150	0,7 bar 143,0-145,0 (140,0-148,0)	1190-1200 *	LDA 500	0 bar 98,0-102,0 (95,0-105,0)	100 150,0-170,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

HAA
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H11

D. Adjustment Test for Manifold Pressure Compensator

MAN 20,9 d

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P..LS 839 + ...PA 439 R	0,70	0 0,28 0,18	12,3 - 12,4 10,5 - 10,6 11,8 - 11,9 10,8 - 11,2

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

H12

En H12

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9k

2. Edition

En

TestOil-ISO 4113

PE 12 P 110 A 520 LS 839 RQV 250-900 PA 534

supersedes 80

compaMAN

engineD 2542 MTE

Komb.-Nr. 0 401 840 073

12- 1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7

0-45 -60- 105-120-165-180-225-240-285-300-345° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,95-3,15)

Port closing at prestroke

3,00-3,10

mm (from BDC) Zyl. 12

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
900	11,4-11,5	13,0 - 13,2	0,4(0,8)			
250	7,6-7,8	1,8 - 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Intermediate rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	4	Lower rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	3	Sliding sleeve travel ① rev/min mm
1	2	3	2a	4	5	8	7	3	2	3	10	11
max.	900	15,2-17,8		-	-	-		ca.13	100	min. 9,2	200	0,6-0,8
									250	7,6-7,8	430	2,7-3,0
ca. 64	10,4	940-950							535-595	=2,0	670	4,5-5,0
	4,0	990-1020									900	7,9
	1150	0 - 1,0										

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5
900	130,0-132,0 (127,0-135,0)	940-950*	-	-
				100 19,5-21,0 mm RW
				100-170(80-190)

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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H13

H13

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 17,4 b 1

2. Edition

En

PE 10 P 120 A 520/4 LS 850 RQV 250-1150 PA 647

1- 8- 7- 6 - 3 - 5 - 2 - 10- 9- 4
0-27-72-99 -144-171-216-243-288-315° $\pm 0.5^\circ$ ($\pm 0.75^\circ$)

supersedes 83

company: MAN

engine: D 2540 MLE
405 kW

Komb.-Nr. 0 401 849 166

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0-3,1

(2,95-3,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,1	18,5-18,8	0,5(0,9)			
	250	6,2-6,4	1,2-1,8	0,8(1,2)		

Adjust the fuel delivery from each outlet according to the values in

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

B. Governor Settings

Upper rated speed Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel rev/min 3	Intermediate rated speed Degree of deflection of control lever 4	Control rod travel mm 5	Control rod travel mm 6	Lower rated speed Degree of deflection of control lever 7	Control rod travel mm 8	Control rod travel mm 9	Sliding sleeve travel rev/min 10	Sliding sleeve travel mm 11
max.	1190	15,2-17,8	-	-	-	ca. 11	100	min. 7,8	350	2,0-2,5
ca. 63	10,2 4,0 1400	1190-1200 1255-1285 0-1,0					250 380-440=2,0	6,2-6,4 2,0	750 1150	5,7-6,0 3,1-8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2	Rotational-speed limitation intermediate speed rev/min 3	Fuel delivery characteristics high idle speed rev/min 4	Starting fuel delivery idle switching point rev/min 6	Torque-control travel Control rod travel rev/min 8
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 6	rev/min 8
LDA 1150	1,0 bar 185,0-188,0 (182,0-191,0)	1190-1200*	LDA 500	0 bar 119,0-122,0 (116,0-125,0)

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure
increasing

MAN 17,4 b 1

-2-

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 P..LS 850 +RQV.. PA 647	1,0	0 0,65 0,54	11,2-11,3 9,6-9,7 10,8-10,9 10,0-10,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 SCA 11,0 x

1. Edition

En

PE 6 P 110 A 720 RS 3041, I ... Z EP/RSV 350-1100 P 1/310R^{supersedes}

company: Scania
engine: DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,3-3,4

Port closing at prestroke (3,25-3,45) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,0+0,1	15,7-15,9	0,4 (0,8)			3,3 ± 0,1 (3,0-3,5) **
350	3,7-3,9	0,7-1,1				
In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.						

Adjust the fuel delivery from each outlet according to the values in

**

B. Governor Settings

1	Upper rated speed rev/min		Intermediate rated speed			4	Lower rated speed		3	Torque control	
Degree of deflection of control lever	Control rod travel		Control rod travel rev/min			Control-lever deflection in degrees	Control rod travel		rev/min	Control rod travel	
1	2	3	4	5	6	7	8	9	10	rev/min	mm
ca. 66	1100	16,0	without auxiliary spring	ca. 30	350	6,0	-	-	-	-	-
	1150	11,7			100	min. 19					
(2a)	1200	6,0	with auxiliary spring		350	5,7-6,3	-	-	-	-	-
	12,0	1140-1150			400	3,2-4,7					
	4,0	1220-1255			550	0 - 1,0					
	1290	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop		6	Rotational-speed limitat	3a		Fuel delivery characteristics		Starting fuel delivery	5	4a	Idle stop
Test oil temp. 40°C (104°F)	rev/min	cm³/1000 strokes	Note:	changed to ..	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	Idle	rev/min	Control rod travel	
1	2	3	4	5	6	7	8	9	10	11	mm	
110	155,0-157,0 (152,0-160,0)	1140-1150 *	600	161,0-165,0 (158,0-168,0)	100	20,5-21,0 mm RW	-	-				
					350	9 - 13						
						Dispersion max. 2 (4) **						

Checking values in brackets

* 1 mm less control rod travel than col 2

6.83

BOSCH

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Increased or reduced outputs of the types listed on page 1

Output variation	Output %	Fuel delivery in cm ³ /1000 strokes at pump speed (min ⁻¹) 1)				Adjustment of control-rod position from 100% setting (mm)
		1100	900	750	600	
P	120	205	208	212	214	+ 2,6
U	115	191	196	198	200	+ 1,9
R	113	186	191	192	195	+ 1,7
W	110	180	185	185	188	+ 1,3
V	108	175	179	179	183	+ 1,0
Y	105	170	173	172	177	+ 0,7
T	103	166	167	166	171	+ 0,4
S	98	154	156	156	158	- 0,2
X	95	146	149	149	150	- 0,5
Q	93	141	145	145	146	- 0,8
Z	90	134	138	139	140	- 1,1
O	88	131	134	136	137	- 1,3
N	85	124	126	130	131	- 1,6
M	80	114	115	119	121	- 2,1
L	75	105	106	108	111	- 2,6
K	70	98	98	98	99	- 3,0
J	65	89	90	90	90	- 3,4
I	60	86	84	83	80	- 3,8

1) Tolerances with fuel quantity are $\pm 1 \text{ cm}^3$ at setting speed.

With subsequent orders from KH/ALP only the standard setting according to page 1 will be delivered. If required, the above mentioned variations are to be carried out through your local BOSCH Service Station.

The delivery amounts given in the table have been compiled from Saab-Scania documentation upon their request.

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 d 1

4. Edition

En

PE 6 P 120 A 320 RS 3050

ROV 250-1100 PA 611

supersedes 83
company: Volvo
engine: TD 120 F
Komb.-Nr. 0 401 846 747

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4-2,5
(2,35-2,55) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,0+0,1	23,8-24,0	0,5(0,9)			2,5 ±0,1 (2,2-2,9)
250	3,8-4,0	2,2-2,6	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel					
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	3	rev/min	mm	1
1	2	3	2a	4	5	6	4	7	8	9	3	10	11	
max.	1180	15,2-17,8		-	-	-		ca. 7	100	min. 5,3	200	0,7-0,9		
ca. 65	12,0	1160-1170							250	3,8-4,0	500	4,2-4,8		
	4,0	1225-1255							290-350=2,0		660-	6,4-6,6		
	1350	0 - 1,0									1040		7,3	
											1100			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery Idle switching point	Torque-control travel
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	Control rod travel rev/min 8
LDA 700	1,2 bar 237,5-239,5 (234,5-242,5)	1160-1170*	LDA 700	0 bar 142,0-144,0 (139,0-147,0)	100 20,0-21,0 mm RW	- -

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

VOL 12,0 d 1 -2-

Pump/governor	Setting		Measurement	Control rod travel	diminution difference
	Gauge pressure =	bar	Gauge pressure =	bar	mm (1)
PE 6 P ..RS 3050 + RQV.. PA 611	0,67		1,2 0 0,30		12,2-12,3 13,0-13,1 9,2- 9,3 10,5-10,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 f 4

2. Edition

En

PE6P120A320RS3071Z

RQV 250-1025 PA 371

Komb.-Nr. 0 401 846 766

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

supercedes. 83

company: Volvo

engine: TD 120 G/USA
243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,6-2,7

Port closing at prestroke (2,55-2,75)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	19,6-19,8	0,5(0,9)			
250	5,8-6,0	2,2 - 2,6	0,3(0,6)			2,5 ⁺ 0,1 (2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 1a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 12	100	min. 7,3	200	0,7-0,9
ca. 42	10,4	1065-1075					250	5,8-6,0	475	2,8-3,1
	4,0	1145-1175					310-360=2,0	750	4,8-5,1	
	1300	0 - 1,0						1025		7,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4b		Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point 6		Torque-control travel Control rod travel mm 5	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4b	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	rev/min 9
LDA 700	0,9 bar. 196,0-198,0 (192,0-202,0)	1065-1075*	LDA 700	0 bar 164,0-168,0 (161,0-171,0)	100	240,0-280,0 =RW 20,0 21,0 mm		-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

Testoil-ISO 4113

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

-2-

VOL 12,0 f 4

Pump/governor	Setting	Measurement	Control rod travel- diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE6P..RS3071Z + RQV.. PA 371	0,45	0,90 0 0,28	11,0-11,1 11,4-11,5 9,9-10,0 10,1-10,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② **Test Specifications
Fuel Injection Pumps
and Governors**

40

WPP 001/4
3. Edition
En

ROL 16,31

3.

Testoil-ISO 4113

PE 8 P 130 A 120 RS 3072 RQ 750 PA 533
RS 3072-1 RQ 750 PA 533
1 - 3 - 6 - 5 - 4 - 8 - 7 - 2 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes 2.82
Rolls Royce
company
engine CV8-300G

2.82

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(3,45-3,65) Port closing at prestroke 3,50-3,60 mm (from BDC bei RW 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	12,6+0,1	31,8 - 32,2	0,5(0,9)			
300	4,9-5,1	38 - 4,4	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider rev/min	Control rod travel mm	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	rev/min	Control rod travel mm
-	-	-	-	11,6 3,5 0-1,0	750-755 755-785 900	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min		Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/100 strokes	rev/min
700	318,0-322,0 (315,0-325,0)	-	-	-	-	-	-

Checking values in brackets

7.83

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8

3. Edition

En

Testoil-ISO 4113

PE 10 P 110 A 920/5 LS 3073 RQV 300-1150 PA 549
Komb.-Nr. 0 401 849 703
1-10-9 - 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-243-288-315 ° ±0,5 ° (±0,75 °)

supersedes 1.83
company KHD
engine: BF 10L 413 F
265 kW (360 PS)
bei 2050 min -1
bzw. 259 kW (352PS)
(Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,6+0,1	13,8-14,0	0,4(0,8)			
	5,9-7,1	1,8 - 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	1a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	1a	rev/min 10	mm 11
max.	1220	15,2-17,8		-	-	-		ca. 24	100	min. 8,4	250		
ca. 64	9,7 4,0 1400	1190-1200 1270-1300 0 - 1,0	2a	4	5	6	4		300	6,9-7,1 465-525 = 2,0	550 1150	550 1150	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 3		Fuel delivery characteristics high idle speed 5a 5b		Starting fuel delivery idle switching point 6		Torque-control 5 travel Control rod travel 8 9	
rev/min 1	cm³/1000 strokes 2	rev/min 3	4	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	cm³/1000 strokes 9
LDA 800	0,9 bar 138,0-140,0 (135,0-143,0)	1190-1200 *		LDA 500	0 bar 85,0-89,0 (82,0-92,0)	100	110,0-140,0	1150 1025 875 800	10,7+0,2 10,9+0,2 11,4+0,2 11,6+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

D. Adjustment Test for Manifold Pressure Compensator

KHD 15,8 f

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- diminution (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
PE 10 P..LS 3073 RQV.. PA 549	0,55	0,90 0 0,39	11,2-11,3 11,6-11,7 9,4-9,5 10,1-10,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

H24

H24

En

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 d

2. Edition

En

Testoill-ISO 4113

PE 12 P 110 A 920 LS 3060 RQV 300-1250 PA 576 KR

Komb.-Nr. 0 401 840 702

1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12

0 - 45 - 60-105-120-135-180-225-240-285-300-345° ± 0,5° (+0,75°)

supersedes 9.82

KHD

company

engine: BF 12 L 413 FC

386 kW bei 2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8 - 2,9

Port closing at prestroke

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	12,0±0,1	15,2 - 15,6	0,4 (0,8)			
300	7,0-7,2	1,8 - 2,4	0,7 (1,0)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Intermediate rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Lower rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Sliding sleeve travel mm	
max.	1270	15,2-17,8	-	-	-	ca. 13	100	min. 8,3	250	0,3-0,6
ca. 63	11,0	1290-1300	4,0	1390-1420	350-500	300	6,7-6,9	580	3,5-3,7	
	1550	0 - 1,0						920	5,3-5,5	
								1250	8,3	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)	Rotational-speed intermediate intermediate speed rev/min	Fuel delivery characteristics high idle speed rev/min	Starting fuel delivery idle switching point rev/min	Torque-control travel Control rod travel rev/min
1250	1290-1300*	LDA 850 LDA 500	100 130,0-1 0,0 bei 13,0-13,2 mm RW	1250 650 500
1250	0,85 bar 152,0-156,0 (150,0-158,0)	0,85 bar 136,0-140,0 (133,0-143,0) 0 bar 77,0 - 79,0 (73,0 - 83,0)		12,0+0, 11,2+0, 11,0+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.83

J1
BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

KHD 19,0 d

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement		Control rod travel-dimension difference (1)
		Gauge pressure =	bar	
PE 12 P.. LS 3060 + .. PA 576 KR	0,85	0 0,55 0,29		11,1 - 11,2 9,1 - 9,2 11,0 - 11,1 9,4 - 9,6

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 o2

2. Edition

En

PE 6 P 110 A 320 RS 3080-1 RQV 250-1100 PA 589

Komb.-Nr. 0 401 846 769

superseded 2.82

company: Volvo

engine: TD 100 F

220 kW (299 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0 - 3,1
(2,95-3,15)

mm (from BDC)

= RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,7+0,1	17,9 - 18,1	0,4(0,8)			2,5 + 0,1
250	3,8-4,0	1,7 - 2,1	0,3(0,6)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1180	15,2-17,8	-	-	-	ca. 8	100	min. 5,3	200	0,7-0,9
ca. 63	11,7	1160-1170					250	3,8-4,0	500	4,2-4,8
	4,0	1235-1265					305-365 = 2,0		600	
	1350	0 - 1,0							bis 1040	6,4-6,6
									1100	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	9
LDA	0,75 bar	1160-1170*	LDA	0 bar	100	150,0-200,0	-	-	-
700	179,0-181,0 (176,0-184,0)		1000	170,0-174,0 (167,0-177,0)		= 20,0-21,0			
			LDA	0 bar		mm RW			
			700	130,5-133,5 (127,5-136,5)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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BOSCH

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 o 2 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod travel- mm (1)	diminution difference
PE6P .. RS 3080-1	0,42			12,0 - 12,1
+ RQV .. PA 589		0,75		12,7 - 12,8
		0		9,9 - 10,0
		0,26		10,8 - 11,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 K 1

1. Edition

En

PE 8 P 120 A 320 LS 3807 RQV 300-1150 PA 545-1
1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes
company Daimler-Benz
engine: OM 422 LA
276 kW
Komb.-Nr. 0 401 848 754

TestOil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1
(3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,0+0,1	18,2-18,4	0,5(0,9)			
300	4,8-5,0	1,2-2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8		-	-	-	ca.11	100	min.6,5	300	1,6-1,8
ca.65	11,0	1190-1200						300	4,8-5,0	800	4,6-5,0
	4,0	1235-1265					320-			1200	8,4-8,7
	1400	0-1,0					460			1265	9,6-10,3
							3a				

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	5a	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	5b	6	7	8	9
LDA	0,7 bar	1190-1200*		LDA	0,7 bar				
1150	182,0-184,0			750	195,0-198,0		100	140,0-160,0	1150
	(179,0-187,0)				(192,0-201,0)			(136,0-164,0)	750
				LDA	0 bar				12,0+0,1
				500	141,0-143,0				12,4+0,1
					(138,0-146,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 K 1

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-	diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm	(1)
PE8P..LS3807 + RQV..PA545-1	0	0,40 0,55	10,5-10,7 11,1-11,4 12,2-12,6	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

② **Test Specifications
Fuel Injection Pumps ②
and Governors**

40

WPP 001/4 MB 21,9 e 1

1. Edition

En

PE 12 P 110 A 320 LS 3820 RQ 900 PA 634

Komb.-Nr. 0 401 840 706

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (-0,75°)

supersedes =
company: Daimler-Benz
engine: OM 424
288 kW (392 PS)
Generator

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

4,0-4,1

(3,95-4,15)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
880	12,6±0,1	12,0-12,2	0,4(0,8)			
300	8,2-8,4	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min	1	Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	Test specifications Control rod travel mm	rev/min	11	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	11,6 4,0 1050	900-905 947-957 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 900-905 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)	2	Control rod stop		3a	Fuel delivery characteristics		3b	Starting fuel delivery Idle speed		6
		rev/min	cm³/-1000 strokes		rev/min	rev/min		rev/min	cm³/1000 strokes/mm	
1	2	3	4	5	6	7	8	6	7	8
880	120,0-122,0 (117,0-125,0)	-	-		-	-		100	130,0-150,0	

Checking values in brackets

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7.83

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 21,9 e

1. Edition

En

PE 12 P 110 A 320 LS 3820 RQ 750 PA 636

Komb.-Nr. 0 401 840 707

1- 5- 9- 8- 3- 4- 11- 10- 2- 6- 7- 12
0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (+0,75°)

supersedes:

company: Daimler-Benz

OM 424

247 kW (336 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDQyl. 12; RW=9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,8±0,1	12,5-12,7	0,4(0,8)			
300	8,2-8,4	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Setting point	Test specifications	Control rod travel mm	Control rod travel mm	Setting point	Test specifications
Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min
-	-	-	-	11,8 4,0 900	750-755 790-800 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

750-755 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	rev/min
1	2	3	4	5	6	7	
700	125,0-127,0 (122,0-130,0)	-	-	-	100	130,0-150,0	

Checking values in brackets

J8

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 11,0 u 4

4. Edition

En

PE 6 P 120 A 720 RS 7001 RSV 350-1100 P 1/481

supersedes 82

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

company: Saab-Scania

engine: DS 1140, 41, 42
DSI11 40, 44

Komb.-Nr. 0 402 676 800

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1
(4,95-5,15)bis FD 052: 4,4-4,5 mm
(4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	13,2+0,1	19,9 - 20,1	0,6(0,9)			3,3 ± 0,1
	4,4-4,6	1,3 - 1,7	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
100se	800	0,3 - 1,0	-	-	-	ca. 26	350	4,0	-	-
ca. 64	12,2 4,0 13,0	1090-1100 1170-1200 0,3-1,7	x = 5,5				350 450-510=2,0	4,4-4,6 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)	rev/min	Note: changed to ... rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
	1	2	3	4	5	6	7	8
700	199,0-201,0 (196,0-204,0)	1090-1100*	1000	193,0-201,0 (191,0-203,0)	100	240,0-290,0 ≈ 20,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.83

1 Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 SCA 11,0 u

4. Edition

Ed

PE 6 P 120 A 720 RS 7001 RQV 200-1000 PA 539

supersedes 9.82

company Scania

DS 11 15

engine Komb.-Nr. 0 402 646 801

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settingsfrom ab FD 141: 5,0-5,1
Port closing at prestroke (4,95-5,15) mm (from BDC) to FD 052: 4,40-4,50
(4,35-4,55)

RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	13,2±0,1	19,9-20,1	0,6(0,9)			3,3±0,1 **
225	4,4-4,6	1,3-1,7	0,3(0,6)			(3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the initial spring tension
with a new delivery-valve holder must be adjusted to 3,0-3,1 mm**B. Governor Settings**

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	4	7	8	10	11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 62	12,2	1040-1050					225	4,4-4,6	430	3,0-3,5
	4,0	1150-1180					310-370=2,0		720	5,0-5,2
	1300	0-1,0							1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation Intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	4a	5a	6	5
LDA	0,9 bar	1040-1050*	LDA	0,9 bar	100	240,0-290,0
700	199,0-201,0 (196,0-204,0)		1000	193,0-201,0 (191,0-203,0)		bei 20,0 - 21,0 mm RW
			LDA	0 bar		
			500	160,0-164,0 (158,0-166,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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5.83

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 u - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- mm	diminution (1) difference
PE 6 P..RS 7001 + ..PA 539	0,42		0,90		12,8 - 12,9	
			0		13,2 - 13,3	
			0,29		11,6 - 11,7	
					11,9 - 12,1	

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u8
2. Edition

En

PE 6 P 120 A 720 RS 7001 RQV200-1000 PA 612

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 10.82
company: Scania
engine: DN 11 06, 07
BUS-Motor
Komb.-Nr. 0 402 646 807

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1
Port closing at prestroke (4,95-5,15) mm (from BDC) bis FD 052: 4,4-4,5 mm
(4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	11,3+0,1	15,7-15,9	0,6(0,9)			3,3 [±] 0,1 (3,0-3,5) **
225	4,4-4,6	1,1-1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 3,0-3,1 mm

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever	rev/min	Control rod travel mm	1a	Degree of deflection of control lever	rev/min	Control rod travel mm	4	Degree of deflection of control lever	rev/min	Control rod travel mm	1
1	2	3	2a	4	5	6	7	8	9	10	11
max.	1000	15,2-17,8		-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 59	10,3 4,0 1250	1040-1050 1125-1145 0-1,0						225	4,4-4,6	430 720 1000	3,0-3,5 5,0-5,2 7,7
							3a		310-370=2,0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	5a	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
600	157,0-159,0 (154,0-162,0)	1040-1050*		1000	154,0-162,0 (152,0-164,0)	100	220,0-270,0 = 20,0- 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.83

J12
J12 BOSCH

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① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u 9

En

1. Edition

PE 6 P 120 A 720 RS 7001 S RQV 200-1050 PA 539

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 81
company Saab-Scania

engine: DS 1115
Komb.-Nr. 0 402 646 802

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

5,0-5,1
(4,95-5,15)

mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	13,0+0,1	19,4-19,6	0,6(0,9)			3,3+0,1 (3,0-3,5) **
225	4,4-4,6	1,3-1,7	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Intermediate rated speed			Lower rated speed Degree of deflection of control lever	rev/min	Control rod travel mm	Sliding sleeve travel rev/min	mm
			①	②a	④					
max.	1050	15,2-17,8	-	-	-	ca. 10	100 225 310-370=2,0	min. 5,9 4,4-4,6 2,0	150 450 750 1050	0,5-0,7 3,3-4,0 5,3-5,5 7,7
ca. 59	12,0 4,0 1400	1090-1100 1220-1250 0-1,0				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel			
rev/min	cm³/1000 strokes	rev/min	④a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	⑥	Control rod travel mm
LDA 700	0,9 bar 194,0-196,0 (191,0-199,0)	1090-1100*	LDA 10 0	0,9 bar 189,0-197,0 (187,0-199,0)	100	240,0-290,0 =20,0-21,0 mm RW	-	-	-
			LDA 500	0 bar 160,0-164,0 (158,0-166,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 u 9 -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel-mm	diminution difference (1)
	Gauge pressure = bar	Gauge pressure = bar		
PE 6 P .. RS 7001s +RQV .. PA 539	0,90	0 0,42 0,29		13,0-13,1 11,6-11,7 12,8-12,9 11,9-12,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

J14

En J14

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 11,0 u 7

2. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 720 RS 7001 RQ 200/1000 PA 615

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 6.82

company: Scania

engine: DN 1106, 07

Komb.-Nr. 0 402 646 808

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141:

5,0 - 5,1

Port closing at prestroke (4,95 - 5,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,3+0,1	15,7 - 15,9	0,6(0,9)			3,3 + 0,1
225	4,4-4,6	1,1 - 1,5	0,3(0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in [].

B. Governor Settings

Checking of slider PRG check Control rod travel rev/min 1	Full-load speed regulation				Idle speed regulation				Torque control	
	Setting point		Test specifications		Setting point		Test specifications		Control rod travel rev/min 11	Control rod travel rev/min 12
Control rod travel mm 3	rev/min 4	Control rod travel mm 5	rev/min 6	Control rod travel mm 7	rev/min 8	Control rod travel mm 9	rev/min 10			
600	15,6-16,4	600	16,9 4,0 1200	10,3 1090-1120 0 - 1,0	1045-1060	225	4,1	100 225 300-340 = 2,0	min. 5,9 4,4-4,6	-

Torque-control travel
on flyweight assembly dimension a = mm

mm

Speed regulation: At

1045-1060 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min 3	Fuel delivery characteristics			Starting fuel delivery Idle speed rev/min 6	Control rod travel cm³/1000 strokes/mm 7
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5		rev/min 6	cm³/1000 strokes/mm 7
600	157,0-159,0 (154,0-162,0)	-	1000	154,0-162,0 (152,0-164,0)		100	220,0-270,0 / 20,0-21,0 mm RW

Checking values in brackets

Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 3,0-3,1 mm

BOSCH

② **Test Specifications
Fuel Injection Pumps
and Governors**

40

WPP 001/4 SCA 11,0u3

2. Edition

En

Testoil-ISO 4119

PE 6 P 120 A 720 RS 7001 RQ 250/1000 PA 616

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 5.81
company Scania
engine DS 11 15

Komb.-Nr. 0 402 646 809

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0 - 5,1 mm (from BDC) bis FD 052: (4,35-4,55) 4,4 - 4,5 mm
Port closing at prestroke (4,95-5,15)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	19,9 - 20,1	0,6(0,9)			3,3 ± 0,1 ** (3,0 - 3,5)
	4,4-4,6	1,3 - 1,7	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0 4,0	12,2 1200	1045-1060 1115-1145 0 - 1,0	225	4,5	100 225 300-340=2,0mm	min. 5,9 4,4-4,6	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 1045 - 1060 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop rev/min 3	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/100 strokes 7
LDA 700	0,9 bar 199,0 - 201,0 (196,0 - 204,0)	-	LDA 1000 IDA	0,9 bar 193,0 - 201,0 (191,0 - 203,0) 0 bar 160,0 - 164,0 (158,0 - 166,0)	100	240 - 290 = 20-21 mm RW

Checking values in brackets

5.83

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Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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B Governor Settings

SCA 11,0u3

- 2 -

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point		Test specifications		rev/min	Setting point		Test specifications		rev/min
		rev/min	Control rod travel mm	rev/min	Control rod travel mm		rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	Control rod stop	rev/min	cm³/-1000 strokes	rev/min	cm³/-1000 strokes / mm
1	2	3	4	5	6	7	Control rod travel

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

500

Test at n = rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel (1)
	Gauge pressure = bar	Gauge pressure = bar	mm
RS 7001 + .. PA 616	0,90	0,42 0,29 0	13,2 - 13,3 12,8 - 12,9 11,9 - 12,1 11,6 - 11,7

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

EPA*

Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 3,0-3,1 mm

Test Specifications

Fuel Injection Pumps 1A and Governors

40

WPP 001/4 SCA 14,2 c

2. Edition

En

PE 8 P 120 A 920/4 LS 7002 RSV 350-1100 P 1/484
1 - 2 - 7 - 3 - 4 - 5 - 6 - 7 je 45° - $0,5^\circ$ ($-0,75^\circ$)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1 bis FD 052: 4,4-4,5 mm
(4,95-5,15) mm (from BDC) (4,35-4,55)

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,2+0,1	18,7-13,9	0,6(0,9)			3,3+0,1
350	4,4-4,6	1,4-1,3				(3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

1	Upper rated speed rev/min	Intermediate rated speed	4	Lower rated speed	3
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Control-lever deflection in degrees	Control rod travel mm	Torque control Control rod travel rev/min mm
1	2	3	7	8	10 11
loose	800	0,3-1,0	ca. 28	350	4,0
	x = 5,5	- - -		350	4,4-4,6
(2a)	12,2	1140-1150		430-490=2,0	- -
	4,0	1220-1250			
	1350	0,3-1,7			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b	Full-load stop	6	Rotational-speed limitat	3a	Fuel delivery characteristics	Starting fuel delivery Idle	5	4a	Idle stop
Test oil temp. 40°C (104°F)	rev/min cm³/1000 strokes	Note: changed to 1 rev/min	rev/min	rev/min cm³/1000 strokes	rev/min cm³/1000 strokes	rev/min cm³/1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
700	187,0-189,0 (184,0-192,0)	1140-1150*	1000	183,0-191,0 (181,0-193,0)	100	240,0-290,0 =20,0-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

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Geschäftsbericht KH. Kfz-Dienstleist. Kfz-Ausrüstung

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 a 3

3. Edition

En

Testoil-ISO 4113

PE 8 P 120 A 920/4 LS 7002 RQV 250-1000 PA 547

1-2-7-3-4-5-6-8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes 9,82
company: Scania
engine: DS 14 06

Komb.-Nr. 0 402 648 801

A. Fuel Injection Pump Settings

ab FD 141: 5,0 - 5,1 mm (from BDC)
Port closing at prestroke (4,95 - 5,15) bis FD 052: 4,4 - 4,5 mm (from BDC) (4,35 - 4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,2+0,1	18,7 - 18,9	0,6(0,9)			3,3 \pm 0,1 (3,0 - 3,5)
225	4,9-5,1	1,0 - 1,4	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	1a	4	5	4	7	8	10	11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 60	12,2	1040-1050					225	4,4-4,6	470	3,3-3,8
	4,0	1150-1180					310-370=2,0		730	5,1-5,3
	1300	0 - 1,0				3a			1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	4a	rev/min	5a	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6		8	9
LDA	0,9 bar	1040-1050*	LDA	0,9 bar	100	240,0-290,0	-	-	-
700	187,0-189,0 (184,0-192,0)		1000	183,0-191,0 (181,0-193,0)		bei 20,0-21,0			
			LDA	0 bar		mm RW			
			500	137,0-141,0 (135,0-143,0)					

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.83

J19
J19
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D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 a 3

- 2 -

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	Measurement Gauge pressure =	Control rod diminution mm (1)
..LS 7002 RQV..PA 547	0,9 bar	0 bar 0,23 bar 0,35 bar	13,2 - 13,3 11,3 - 11,4 11,9 - 12,1 12,8 - 12,9

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to $3,0 \pm 0,1$ mm

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 a 1

2. Edition

PE 8 P 120 A 920/4 LS 7002 S RQV 250-1050 PA 547

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^{\circ} + 0,5^{\circ}$ ($-0,75^{\circ}$)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 5.81

company: Saab-Scania

DS 140

engine: Komb.-Nr. 0 402 648 802

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1
Port closing at prestroke (4,95-5,15) bis FD 052: 4,4-4,5 mm
mm (from BDC) (4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	13,0+0,1	18,3-18,5	0,6(0,9)			3,3 ⁺ -0,1
	4,4-4,6	1,0-1,4	0,3(0,6)			(3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in _____.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel				
Degree of deflection of control lever	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm
1	2	3	②a	4	5	6	④	7	8	9	③	10	11
max.	1050	15,2-17,8		-	-	-		ca. 10	100	min. 5,9	200	1,0-1,2	
ca. 60	12,0 4,0 1350	1090-1100 1195-1225 0-1,0						ca. 10	225	4,4-4,6	500	3,9-4,4	
									340-400=2,0		800	5,6-5,8	
											1050	7,7	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	④	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	④	4	5	6	7	8	9
LDA 700	0,9 bar 183,0-185,0 (180,0-188,0)	1090-1100*		LDA 1000	0,9 bar 176,0-184,0 (174,0-186,0)	100	240,0-290,0 =20,0-21,0 mm RW	-	-
				LDA 500	0 bar 137,0-141,0 (135,0-143,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 a 1

-2-

Test at n =
500

rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure =	bar	Measurement Gauge pressure =	bar	Control rod travel- mm	diminution difference (1)
PE 8 P .. LS 7002 +RQV .. PA 547	0,90		0			13,0-13,1
			0,35			11,3-11,4
			0,23			12,8-12,9
						11,9-12,1

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 14,2 b 1

3. Edition

En

PE 8 P 120 A 920/4 LS 7003 RQ 750 PA 528
 1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 5.81
 company: Saab-Scania
 engine: DS 14 41, DSI 14 42
 Komb.-Nr. 0 402 648 803

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0 - 5,1
 Port closing at prestroke (4,95-5,15) mm (from BDC) bis FD 052: 4,4 - 4,5 mm
 (4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,8+0,1	18,7 - 18,9	0,6 (0,9)			3,3 \pm 0,1 (3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	rev/min	Setting point Control rod travel mm	rev/min	Test specifications Control rod travel mm	rev/min	Setting point Control rod travel mm	rev/min	Test specifications Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	11,8 4,0 850	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 750 - 755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever: Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics	Starting fuel delivery Idle speed
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min
1	2	3	4	5
700	187,0-189,0 (184,0-192,0)	-	-	100 240,0-290,0 = 20,0 - 21,0 mm RW

Checking values in brackets

5.83

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② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 14,2 b

2. Edition

En

PE 8 P 120 A 920/4 LS 7003 RQ 900 PA 528

1-2-7-3-4-5-6-8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 3.81
company: Saab-Scania
engine: DS 14 41, DSI14 42
Komb.-Nr. 0 402 648 804

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141:

5,0-5,1

Port closing at prestroke

(4,95-5,15)

bis FD 052:

mm (from BDC)

4,4-4,5

(4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,8+0,1	18,6-18,8	0,6 (0,9)			3,3 $\pm 0,1$ (3,0-3,5)
						**

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Test specifications rev/min	Control rod travel mm	Control rod travel mm	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
-	-	-	-	11,8 4,0 1000	900-905 932-946 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics	Starting fuel delivery Idle speed
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min
1	2	3	4	5
850	186,0-188,0 (183,0-191,0)	-	-	100 240,0-290,0 = 20,0-21,0 mm RW

Checking values in brackets

5.83

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② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 14,2 b 2

2. Edition

En

PE8P 120A 920/4 LS 7003 RQ 1050 PA 528
1-2-7-3-4-5-6-8 je $45^\circ \pm 0,5^\circ (-0,75^\circ)$

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubin 1 680 750 015

supersedes 4.81
company: Saab-Scania
engine: DS 14 41, DSI14 4;
Komb.-Nr. 0 402 648 805

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141:

Port closing at prestroke (4,95-5,15)

bis FD 052:

mm (from BDC)

4,4-4,5 mm

(4,35-4,55)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1000	12,8±0,1	19,9-20,1	0,6(0,9)			3,3 ±0,1 (3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm	Control rod travel mm
-	-	-	-	11,8 4,0 1150	1050-1055 1087-1102 0-1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 1050-1055 mm⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes/mm
1000	199,0-201,0 (196,0-204,0)	-	-	-	-	100	240,0-290,0 = 20,0-31,0 mm RW
High idle speed Dispersion 4,0 (7,0)							

Checking values in brackets

5.83

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Geschäftsbericht Kfz. Kundendienst, Kfz-Ausstattung,
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K1

K1

② **Test Specifications
Fuel Injection Pumps
and Governors**

40

WPP 001/4 SCA 11,0 v

3. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 720 RS 7004 RQ 750 PA 528

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 5.81
company SAAB-SCANIA
engine DS 1143, 44, 45
DSI11 42, 45
Komb.-Nr. 0 402 646 803

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

a.b FD 141: 5,00-5,10 bis FD 052: 4,40-4,50
Port closing at prestroke (4,95-5,15) mm (from BDC) (4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,8+0,1	20,9 - 21,1	0,6(0,9)			3,3 ± 0,1 ** (3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in
Due to smoothing of the seating edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,8 4,0 850	750-755 776-789 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At 750-755 min⁻¹

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/100 strokes 7	
700	209,0 - 211,0 (206,0 - 214,0)	-	-	-	100	240 - 290 = 20,0-21,0 RW	

Checking values in brackets

5.83

K2
BOSCH

Geschäftsberreich KH. Kundendienst. Kfz-Ausrüstung.
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② Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 11,0 v 2

2. Edition

En

PE 6 P 120 A 720 RS 7004

RQ 900 PA 528

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 4.81
Saab-Scania
company:
engine: DS 11 43, 44, 45
DSI11 42, 45
Komb.-Nr. 0 402 646 804

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1
Port closing at prestroke (4,95-5,15)

bis FD 052:
mm (from BDC)

4,4-4,5 mm
(4,35-4,55)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,8±0,1	20,8 - 21,0	0,6(0,9)			3,3 ±0,1 (3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation						Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point		Test specifications		rev/min	Setting point		Test specifications		rev/min	Control rod travel mm	
		rev/min	Control rod travel mm	Control rod travel mm	rev/min		rev/min	Control rod travel mm	rev/min	Control rod travel mm		rev/min	Control rod travel mm
-	-	-	-	11,8	900-905		-	-	-	-		-	-
				4,0	932-946								
				1000	0-1,0								

Torque-control travel
on flyweight assembly dimension a =

mm

900-905 min⁻¹

1 mm less control
rod travel

Speed regulation: At

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics			Starting fuel delivery Idle speed	
rev/min	cm³/-1000 strokes	rev/min	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm³/1000 strokes/mm	
1	2	3	4	5	6	6	7	
850	208,0-210,0 (205,0-213,0)	-	-	-	-	100	240,0-290,0 = 20,0-21,0 mm RW	

High idle speed

Dispersion 4,0 (7,0)

Checking values in brackets

K3
BOSCH

② **Test Specifications
Fuel Injection Pumps
and Governors**

40

WPP 001/4 SCA 11,0 v 1
2. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 720 RS 7004 RQ 1050 PA 528

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -
company Saab-Scania
engine DS 1143, DSI11 45
Komb.-Nr. 0 402 646 805

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

ab FD 141: 5,0-5,1 mm (from BDC)
Port closing at prestroke (4,95-5,15) bis FD 052: 4,4-4,5 mm (4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,8+0,1	21,3 - 21,5	0,6(0,9)			3,3 ± 0,1 (3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in
•• Due to smoothing of the sealing edge, the spring tension with a new
delivery-valve holder must be adjusted to 2,9-3,1 mm

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications rev/min 5	Control rod travel mm 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,8 4,0 1150	1050-1055 1087-1102 0 - 1,0	-	-	-	-	-	-

Torque-control travel
on flyweight assembly dimension a = mm Speed regulation: At 1050-1055 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/100 strokes 7	
1000	213,0-215,0 (210,0-218,0)	-		High idle speed 27,0 - 35,0 Dispersion 4,0 (7,0)	100	240 - 290 ≈ 20,0 - 21,0 RW	

Checking values in brackets

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Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 11,0 v

1. Edition

En

PE 6 P 120 A 720 RS 7007 RQV 200-1000 PA 539-2

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -
company: Scania
engine: DSC 1101
LKW 112
Komb.-Nr. 0 402 646 812

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,5 - 4,6 mm (from BDC) = RW 6,0 - 8,0 mm
(4,45-4,65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
700	14,7+0,1	21,0-21,2	0,7(1,0)			3,3 ⁺ 0,1
	4,4-4,6	1,4-1,8	0,3(0,6)			(3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in

Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 3,0 mm.

B. Governor Settings

Upper rated speed Degree of deflection of control lever	Intermediate rated speed			Lower rated speed			Sliding sleeve travel								
	rev/min	Control rod travel mm	①	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	rev/min	mm	①	
max.	1040	15,2-17,8	-	-	-	-	ca. 9	100	min. 5,9	150	0,5-0,8	225	4,4-4,6	430	3,1-3,6
ca. 62	13,7 4,0 1300	1040-1050 1165-1195 0-1,0	②a ②b ③a	4 5 6			7	8	9	310-370 = 2,0	720 1000	5,1-5,4 7,9			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point	Torque-control travel		
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
LDA 700	0,9 bar 210,0-212,0 (207,0-215,0)	1040-1050 *	LDA 1000 LDA 500	0,9 bar 201,0-209,0 (198,0-212,0) 0 bar 164,0-168,0 (162,0-170,0)	100 240,0-290,0 = 20,0-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test jil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 v - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-dimension difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS 7007 +RQV..PA539-2	0,42	0,90 0 0,30	14,0 - 14,1 14,7 - 14,8 11,8 - 11,9 12,4 - 12,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K6

En K6

①

Test Specifications

Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 d

2. Edition

En

40

PE 8 P 120 A 920/4 LS 7008

RQV 200-950 PA 547-1

supersedes 3.83

company Scania

engine DSC 1401

Komb.-Nr. 0 402 648 807

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,5-4,6

Port closing at prestroke (4,45-4,65)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	14,2+0,1	20,1-20,3	0,7(1,0)			3,3±0,1
	4,6-4,8	1,4-1,8	0,3(0,6)			(3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

** Due to smoothing of the sealing edge, the initial spring tension
with a new delivery-valve holder must be adjusted to 3,0 mm.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	990	15,2-17,8	-	-	-	ca.9	100	min.5,9	150	0,5-0,9
ca.60	13,2	990-1000					225	4,4-4,6	420	3,0-3,5
	4,0	1115-1145					310-370 = 2,0	680	4,8-5,1	
	1250	0-1,0						950	7,4	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6
LDA 700	0,9 bar 201,0-203,0 (198,0-206,0)	990-1000*	LDA 950 LDA 500	100 250,0-300,0 bei 20,0 - 21,0 mm RW	- -
			0,9 bar 194,0-202,0 (193,0-205,0) 0 bar 156,0-160,0 (154,0-162,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

SCA 14,2 d

- 2 -

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 7008 +RQV..PA 547-1	0,35	0,90 0 0,24	13,6 - 13,7 14,2 - 14,3 11,5 - 11,6 12,1 - 12,3

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

① Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOG 22,6 a

1. Edition

En

PE 8 P 120 A 520/4 RS 7010 RQV 250-850 PA 686
1 - 4 - 6 - 2 - 5 - 3 - 7 - 8 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)

Values only apply to test nozzle-and-holder assembly : 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes
company Volgograd
8 DWT 330
engine: 243 kW
Komb.-Nr. 0 402 648 809

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 5,0-5,1
(4,95-5,15) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
850	13,0+0,1	19,4-19,6	0,5(0,9)			
250	5,0-5,2	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	935	15,2-17,8	-	-	-	ca. 9	100	min. 6,6	250	1,1-1,3
ca. 61	12,0	890-900					250	5,0-5,2	650	4,5-4,8
	4,0	950-980					340-400 = 2,0		850	7,2
	1100	0-1,0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed	Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	6	8	
LDA 850	0,7 bar 194,0-196,0 (191,0-199,0)	890-900*	LDA 500	0 bar 125,0-127,0 (122,0-130,0)	100	245,0-265,0 (241,0-269,0)

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.83

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

VOG 22,6 a

- 2 -

Test at n = 500 rev/min decreasing increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE8P..RS7010 + RQV..PA686	0,70	0 0,30 0,16	13,0 - 13,1 10,0 - 10,1 12,1 - 12,3 10,6 - 11,0

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 2,3b 1

2.Edition

En

VA 3/100 H 1300 BR 52-1

0 460 303 085

supersedes 6-82
company Hanomag
engine: D 132-45 PS

Pre-stroke setting ^{0,3 mm}
Setting of the pointer at a stroke of 1,12mm in relation
to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	4,5-5,5 mm		
1.2 Supply pump pressure	1000	5,0-5,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	57,5-58,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes		3,0
1.5 Start (mech.)	100	mind. 65,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1350	28,0-36,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min mm	550-700 (520-730) Beginn	1000 (4,2-5,8)	1050-1200 5,7-6,4 (5,4-6,7)
2.2 Supply pump	rev/min kp/cm ²	100 0,8-1,3 (0,6-1,5)	1000 (4,8-5,7)	1300 5,9-6,4 (5,7-6,6)
Overflow delivery	rev/min cm ³ /10s	500 mind. 25	1000 55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1390-1440 (1370-1460)	0	
		1350	53,5-56,5 (27,0-37,0)	
		1250	53,5-56,5 (52,5-57,5)	
		800	53,5-56,5 (57,0-59,0)	
		500	51,0-54,0 (50,0-55,0)	
	Stop	1300	0	
Idle stop	Full	340-390 (320-410)	0	
		300	(9,0-17,0)	
	Start	150	mind. 65,0	
End stop		500	max. 40,0	

Testoil-ISO 4113

K11

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 6,5 mm (s.a.BMP) Dimension V = - mm

Test Specifications

Distributor-Type

Fuel Injection Pump

46

WPP 001/4 HAN 2,3d 1

2.Edition

En

VA 3/100 H 1300 BR 52-3
0 460 303 097

supersedes 6,82
Hanomag
company:
D 131
engine:

Testoil-ISO 4113

Pre-stroke setting $0,3 \text{ mm}$
Setting of the pointer at a stroke of 1,12mm in relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	3,5-4,5 mm		
1.2 Supply pump pressure	900	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1100	48,5-49,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	10,0-16,0 cm ³ /1000 strokes		
1.5 Start (mech.)	100	mind. 65,0 cm ³ /1000 strokes		3,0
1.6 Full-load speed regulation	1350	28,5-36,5 cm ³ /1000 strokes		

2. Test Specifications

		Checking values in brackets		
2.1 Timing device	rev/min	520-670 (490-700)	900	1000-1150
	mm	Beginn	(3,2-4,8)	5,7-6,4 (5,4-6,7)
2.2 Supply pump	rev/min kp/cm ²	100 1,4-1,9 (1,2-2,1)	900 (4,7-5,6)	1300 6,1-6,6 (5,9-6,8)
Overflow delivery	rev/min cm ³ /10 s	500 mind. 25	1000 55-125 (40-140)	

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min.	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1390-1450 (1370-1470)	0 1350 1250 1100 500 48,0-51,0 (27,5-37,5) (47,0-52,0) (48,0-50,0) (43,5-48,5)	
	Stop	1300	0	
Idle stop	Full	380-430 (360-450)	0 300 100 150 (9,0-17,0)	
End stop	Start		mind. 65,0	

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 \pm 8^\circ$	Pump Dimension IV = 5,5 mm Dimension V = - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 2,3d

3.Edition

En

VA 3/100 H 1200 BR 52-2

0 460 303 096

supersedes 6-82
company Hanomag
engine D 131 R1-32 PS

^{0,3}
Pre-stroke setting mm
Setting of the pointer at a stroke of 1,12mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Instructions and Test Equipment VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	900	4, 3-5, 3 mm		
1.2 Supply pump pressure	900	5, 2-5, 7 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	800	51, 0-52, 0 cm ³ /1000 strokes		2, 5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation (mech.)	300	12, 0-18, 0 cm ³ /1000 strokes		3, 0
1.5 Start	100	mind. 65, 0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1300	24, 0-32, 0 cm ³ /1000 strokes		

2. Test Specifications

		Checking values in brackets	
2.1 Timing device	rev/min mm	450-600 (420-630)	900 1000-1150 (4,0-5,6) 6,7-7,4 (6,4-7,7)
2.2 Supply pump	rev/min kp/cm ²	100 1,5-2,0 (1,3-2,2)	900 1200 (5,0-5,9) 6,2-6,7 (6,0-6,9)
Overflow delivery	rev/min cm ³ /10 s	500 mind. 25	1000 55-125 (40-140)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1330-1390 (1310-1410) 1300 1180 800 500	0 46,0-49,0 (23,0-33,0) (45,0-50,0) (50,5-52,5) 49,5-52,5 (48,5-53,5)	
	Stop		0	
Idle stop	Full	420-500 (400-520) 300	0 (11,0-19,0)	
End stop	Start	100 500	mind. 65,0 mind. 25,0	

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 40 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 \pm 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 1,5 mm</p> <p>Dimension V = - mm</p>

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 3,1d 5

2 Edition

En

VA 4/100 H 1300 CR 53
0 460 304 145

supersedes 6.82
company Hanomag
engine D 142 R 8/6

Testoil-ISO 4113

Pre-stroke setting 0.1 mm
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1100	2,5-3,3 mm		
1.2 Supply pump pressure	1100	4,8-5,3 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1100	47,5-48,5 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	350	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start	100	mind. 75,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1400	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min	600-750(570-780)	1100	1150-1270
	mm	Start	(2,2-3,6)	3,4-4,1(3,1-4,4)
2.2 Supply pump	rev/min	200	1100	1300
	kp/cm ²	1,1-1,6(0,9-1,8)	(4,6-5,5)	5,3-5,8(5,1-6,0)
Overflow delivery	rev/min	500		1300
	cm ³ /10 s	55-100(40-110)		55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1500-1600 (1480-1520)	0	
		1400	(35,0-45,0)	
		1300	46,0-49,0 (45,0-50,0)	
		1100	(47,0-49,0)	
		600	49,0-53,0 (48,0-54,0)	
	Stop	1300	0	
Idle stop	Full	500-580 (480-600)	0	
		350	(11,0-19,0)	
	Start	100	mind. 75,0	

K17

8.83

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K17

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV - mm Dimension V - mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 HAN 3,1

2-Edition

En

VA 6/100 H 1300 CR 54-2
0 460 306 115

supersedes 6.82

company: Hanomag

engine: D 161 R-75 PS

Pre-stroke setting 0.3 mm
Setting of the pointer at a stroke of 1 mm in relation to outlet "A".

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Instructions and Test Equipment VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1000	1,6-2,4 mm		
1.2 Supply pump pressure	1000	4,6-5,1 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1100	50,5-51,5 cm ³ /1000 strokes		
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		
1.5 Start	100	mind. 65,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1400	31,0-39,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets				
2.1 Timing device	rev/min mm	620-770(590-800) Start	1000 (1,3-2,7)	1020-1170 2,5-3,2(2,2-3,5)
2.2 Supply pump	rev/min kp/cm ²	100 0,8-1,3(0,6-1,5)	1000 (4,4-5,3)	1300 5,6-6,1(5,4-6,3)
Overflow delivery	rev/min cm ³ /10s	500 55-100(40-110)		1300 55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1450-1500 (1430-1520) 1400 1300 1100 500	0 (30,0-40,0) 50,5-53,5 (49,5-54,5) (50,0-52,0) 48,5-51,5 (47,5-52,5)	
	Stop	1300	0	
Idle stop	Full	400-450 (380-470) 300	0 (11,0-19,0)	
	Start	100	mind. 65,0	
End stop		mind. 150		

8,83

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Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 40 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + 8^\circ$	Pump Dimension IV = mm Dimension V = mm

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8 q 8
2. Edition

VA 6/10 H 1150 CR 87-3
0 460 306 260

^asupersedes 2.83
company IHC
engine D 358

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

Pre-stroke setting
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	700	2,4-3,2 mm		
1.2 Supply pump pressure	700	4,9-5,4 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	700	69,5-70,5 cm ³ /1000 strokes		3,0
Full-load delivery with charge-air pressure	-	- cm ³ /1000 strokes		
1.4 Idle speed regulation	400	16,0-22,0 cm ³ /1000 strokes		3,0
1.5 Start	100	min. 70,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1200	36,0-44,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min mm	500 0,6-1,6(0,4-1,8)	700 (2,1-3,5)	1150 5,2-5,9(4,8-6,2)
2.2 Supply pump	rev/min kp/cm ²	200 2,1-2,6(1,9-2,8)	700 (4,7-5,6)	1150 6,6-7,1(6,4-7,3)
Overflow delivery	rev/min cm ³ /10 s			

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	1250-1300 1200 1150 700 500	0 (34,0-46,0) 70,0-73,0 (69,0-74,0) (69,0-71,0) 66,0-70,0 (65,0-71,0)	
	Stop	1150	0	
Idle stop	Full	530-580 400	0 (14,0-24,0)	
	Start	100	min. 70,0	

Testoil-ISO 4113

K21

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6.83

Angle to the stop-plate	Pre-setting dimensions
Pump $\alpha = 25 \pm 4^\circ$ $\beta = 42 \pm 8^\circ$ $\gamma = 30 - 8^\circ$ $\delta = 60 + ^\circ$	Pump Dimension IV = 3,8 Dimension V = 24,65 mm

Test Specifications

Distributor-Type

Fuel Injection Pump

46

WPP 001/4 FIA 1,9c 1

3. Edition

En

VA 4/90 H 1900 CR 157-1
0 460 394 017

supersedes 6.82

company Fiat

engine 237 AZ

Pre-stroke setting 0,3 mm \pm 0,02 (\pm 0,04)
Setting of the pointer at a stroke of 1 mm in
relation to outlet "A".

All test specifications are valid for
Bosch Fuel Injection Pump Test Benches
and Testers
Test Instructions and Test Equipment
VDT-WPP 161/4 B
Pre-setting see reverse side

1. Settings	rev/min	Settings	Charge-air press. kp/cm ²	Difference in delivery cm ³
1.1 Timing device travel	1500	5,1-6,1 mm		
1.2 Supply pump pressure	1500	6,0-6,5 kp/cm ²		
1.3 Full-load delivery without charge-air pressure	1500	33,0-34,0 cm ³ /1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm ³ /1000 strokes		
1.4 Idle speed regulation	300	12,0-18,0 cm ³ /1000 strokes		3,0
1.5 Start (autom.)	100	mind. 65,0 cm ³ /1000 strokes		
1.6 Full-load speed regulation	1950	16,0-24,0 cm ³ /1000 strokes		

2. Test Specifications

Checking values in brackets

2.1 Timing device	rev/min mm	400-550(370-580)	1500	1650-1800
		Beginn	(4,8-6,4)	6,1-6,8(5,8-7,1)
2.2 Supply pump	rev/min kp/cm ²	200 1,1-1,6(0,9-1,8)	1500 (5,8-6,7)	1900 7,1-7,6(6,9-7,8)
Overflow delivery	rev/min cm ³ /10 s	500 55-100(40-110)		1900 55-100(40-110)

2.3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm ³ /1000 strokes	Charge-air pressure kp/cm ²
End stop	Full	2100-2220 (2080-2240) 1950 1800 1500 500	0 (15,0-25,0) (30,5-35,5) (32,5-34,5) 29,0-32,0 (28,0-33,0)	
	Stop	1900	0	
Idle stop	Full	440-520 (420-540) 300	0 (11,0-19,0)	
	Start	100	mind. 65,0	
End stop		200-300		

Testoil-ISO 4113

Angle to the stop-plate	Pre-setting dimensions
<p>Pump</p> <p>$\alpha = 25 \pm 4^\circ$</p> <p>$\beta = 40 \pm 8^\circ$</p> <p>$\gamma = 30 - 8^\circ$</p> <p>$\delta = 60 + 8^\circ$</p>	<p>Pump</p> <p>Dimension IV = 3,0 mm</p> <p>Dimension V = 24,6 mm</p>

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 OPE 2,1c

2. Edition

En

VE 4/9 F 2200 L 12
0 460 494 001supersedes 6.83
company: Opel
engine: TL 1755

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

--

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	2000	7,5-7,9 mm		
1.2 Supply pump pressure	2000	6,3-7,3 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1250	37,0-38,0 cm³/1000 strokes		2,5(3,0)
Full-load delivery with charge-air pressure	--	-- cm³/1000 strokes		
1.4 Idle speed regulation	300	6,0-10,0 cm³/1000 strokes		2,5(3,0)
1.5 Start	50	min. 45,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2420	11,0-17,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	2000	--		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 0,8-1,6(0,5-1,9)	1250 3,8-4,6(3,5-4,9)	2000 (7,0-8,4)7,8-8,6(7,5-8,9)	2200
2.2 Supply pump	n = rev/min bar (kgf/cm²)	500 2,7-3,7		2000 6,3-7,3	
Overflow delivery	n = rev/min cm³/10 s	500 55-111(40-126)			2200 55-111(40-126)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2620-2750 2500 2420 2230 1250 600	0 max. 6,0 (10,0-18,0) 30,0-32,5 (28,95-33,55) (35,2-39,8) 29,5-32,5 (28,0-34,0)	
switch-off	2200	0	
idle stop	380-460 300	0 (4,0-12,0)	
2.4 Solenoid	max. cut-in voltage xxx 10 V xxx rated voltage 12V.		

3. Dimensions

for assembly
and adjustment

Designation	mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 4,8
A	2,6-7,6
B	10,4-15,6

Observations

Clearance between idle
position and stop for
increased idling
0.5 - 1.0 mm

TestOil-ISO 4113

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⑥ **Test Specifications**
Distributor-type
Fuel-injection Pumps

En

46

WPP 001/4 OPE 2,1 d
 2.Edition

VE 4/9 F 2200 L 27

0 460 494 008

supersedes 82
 company Opel
 engine TL 1755

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/

Testoil-ISO 4113

Pre-stroke setting -- mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	2000	7,4-7,8 mm		
1.2 Supply pump pressure	2000	6,2-6,8 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1250	36,0-37,0 cm³/1000 strokes		2,5
Full-load delivery with charge-air pressure	--	-- cm³/1000 strokes		
1.4 Idle speed regulation	250	6,0-10,0 cm³/1000 strokes		2,5
1.5 Start	≤100	min. 50,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2420	13,0-19,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	1250	--		

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 0,6-1,6(0,4-1,8) 3,6-4,4(3,3-4,7)(6,9-8,3)7,7-8,5(7,4-8,8)	1250	2000 2200
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 3,0-3,6		2200 6,7-7,3
Overflow delivery	n = rev/min cm³/100 s	500 55-138 (40-153)		2200 55-138 (40-153)

2.3 Fuel deliveries	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	3. Dimensions for assembly and adjustment mm
End stop	2500 2420 2230 1250 600	max. 6,0 (12,0-20,0) 30,5-33,5 (29,7-34,3) (34,2-38,8) 31,5-34,5 (30,0-36,0)		K 3,2-3,4 KF 5,7-5,9 MS 1,7-1,9 SVS 4,6
switch-off elect.	70-400	0	g	A 2,6-7,6 B 11,4-15,6
idle stop	370-470 250	0 (4,0-12,0)		Observations Clerance between idle position and stop for increased idling 0.5 - 1.0 mm.
End stop	110	min. 50		
2.4 Sole	max. cut-in voltage xxx	min. 10 V xxx rated voltage 12V.		

⑥ **Test Specifications**
Distributor-type
Fuel-injection Pumps

46
WPP 001/4 RVI
2. Edition
En

VE 4/12 F 1500 R 51-1

superseded 1.82
company: RVI-Renault
engine: 720 S

0 460 424 005

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

Testoil ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1000	3,3-3,7 mm	0,8	
1.2 Supply pump pressure	1000	4,7-5,3 bar (kgf/cm²)	0,8	
1.3 Full-load delivery without charge-air pressure	500	64,5-65,5 cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1000	88,0-89,0 cm³/1000 strokes	0,8	4,0
1.4 Idle speed regulation	325	14,0-20,0 cm³/1000 strokes	0	3,5
1.5 Start	100	min. 100,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	1650	17,0-23,0 cm³/1000 strokes	0,8	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min	750	1000	1500
LDA=0,8bar	mm	1,3-2,1 (1,0-2,4)	(2,8-4,1)	6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min	300		1500
LDA=0,8bar	bar (kgf/cm²)	1,7-2,3		6,7-7,3
Overflow delivery	n = rev/min	500		1500
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	1700	max. 3,0	0,8	K	3,2-3,4
	1650	(15,0-25,0)	0,8		5,7-5,9
	1600	53,0-61,0(52,0-62,0)	0,8		1,4-1,6
	1500	84,5-87,5(83,0-89,0)	0,8		SVS max. 6,0
	1000	(85,5-91,5)	0,8	A XK	20,1-22,1
	750	84,5-87,5(83,0-89,0)	0,8		8 XL - 12,6-16,4
	* 600	75,0-76,0(72,5-78,5)	0,4		
	500	(61,2-68,8)	0		
switch-off	1500	0			
Idle stop	400	max. 3,0		Observations	
	325	(12,0-22,0)		Manifold-pressure compensator stroke = 4,5 mm	
End stop	200	min. 90,0		Correction at the adjusting nut. (46)	
	350	max. 90,0		24V Pulling electro-magnet	
2.4 Solenoid	max. cut-in voltage test voltage				

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9.83

L3

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/ FIA 1,7a

4. Edition

En

VE 4/9 F 2300 R 54 0 460 494 044

supersedes 1.82
company: Fiat
engine: X8/28

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	4,3-4,7	mm	
1.2 Supply pump pressure	1500	5,1-5,7	bar (kgf/cm²)	
1.3 Full-load delivery without charge-air pressure	1500	34,2-35,2	cm³/1000 strokes	2,5
Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes	
1.4 Idle speed regulation	350	8,0-12,0	cm³/1000 strokes	
1.5 Start	100	min. 48	cm³/1000 strokes	2,5
1.6 Full-load speed regulation	2400	16,0-22,0	cm³/1000 strokes	
1.7 Load-dependent start of delivery	1500	-	cm³/1000 strokes	

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	800 1,7-2,5(1,4-2,8)	1500 (3,8-5,2)	2300 7,2-8,0(6,9-8,3)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,5-3,1		2300 6,9-7,5
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		2300 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2500	6,0-12,0 (5,0-13,0)		K	3,2-3,4
	2400	(15,0-23,0)		KF	5,7-5,9
	2250	28,0-30,0 (26,7-31,3)		MS	1,7-1,9
	1500	(32,4-37,0)		SVS	max. 3,5
	600	23,5-26,5 (22,0-28,0)			
switch-off	2300	0		A X _K	20,1-22,1
				B X _L	9,5-13,3
Idle stop	350	(6,0-14,0)		Observations	
	400	max. 4,0			
	540	0			
2.4 Solenoid	max. cut-in voltage XXXXXX	XXX min. 10 V XXXXXX	rated voltage 12V.		

Test ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 MAN 5,6 b1

1. Edition

En

VE 6/11 F 1500 R 55-7

0 460 416 031

supersedes-
company: MAN
engine: M 0226 MF

Overflow temperature 45° C



All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,6 mm $\pm 0,02(0,04)$

see VDT-W-460V..

1. Settings		Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel		1000	6,0-6,4	mm	
1.2 Supply pump pressure		1000	5,7-6,3	bar (kgf/cm²)	
1.3 Full-load delivery without charge-air pressure		1000	63,5-64,5	cm³/1000 strokes	2,5
Full-load delivery with charge-air pressure		-	-	cm³/1000 strokes	
1.4 Idle speed regulation		300	8,0-12,0	cm³/1000 strokes	2,5
1.5 Start	✓	100	min. 50,0	cm³/1000 strokes	
1.6 Full-load speed regulation		1600	24,0-30,0	cm³/1000 strokes	
1.7 Load-dependent start of delivery		-	-		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 3,7-4,5(3,4-4,8)	1000 (5,6-6,9)	1400 8,9-9,7(8,6-10,0)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 4,2-4,8		1500 7,0-7,6
Overflow delivery	n = rev/min cm³/10 s	500 55-110(40-125)		1500 55-110(40-125)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	1680	max. 8,0		K	-
	1600	(22,5-31,5)		KF	5,7-5,9
	1500	69,25-71,75 (67,8-73,2)		MS	1,2-1,4
	1000	(61,3-66,7)		SVS	max. 4,7
	600	45,75-49,25 (44,1-50,9)		*PH	1,8-2,4
switch-off	1500	0		AXK	25,0-27,0
				BXL	11,8-15,2
Idle stop	390-460 300	0 (5,5-14,5)		Observations	
2.4 Solenoid	max. cut-in voltage test voltage				*operating stroke (KSB)

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VMA 3,6 a 1

2. Edition

En

VE 6/11 F 1900 L 63-1

0 460 416 029

supersedes 1.83
company: VM-Motori
engine: HR 6 H

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Pre-stroke setting 0,2 mm $\pm 0,02$ (0,04)

Test Instructions and Test Equipment
see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,8-4,2 mm	0,75	
1.2 Supply pump pressure	1500	4,9-5,5 bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	42,3-43,3 cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1500	61,0-62,0 cm³/1000 strokes	0,75	3,0
1.4 Idle speed regulation	300	20,0-24,0 cm³/1000 strokes	0,75	3,0
1.5 Start	± 100	min. 40,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	2000	44,0-50,0 cm³/1000 strokes	0	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA=0,75 bar	n = rev/min mm	1000 0,9-1,7 (0,6-2,0)	1500 (3,3-4,7)	1850 5,6-6,4 (5,3-6,7)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	600 2,0-2,6		1850 6,0-6,6
Overflow delivery	n = rev/min cm³/10 s	600 55-138 (40-153)		1900 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2140 2000 1850 1500 *600 600	1,0-9,0 (0,5-9,5) (42,5-51,5) 56,7-59,3 (55,3-60,7) (58,8-64,2) 46,2-47,2 (43,3-50,1) (39,4-46,2)	0,75 0,75 0,75 0,75 0,3 0	K KF MS SVS **PH A XK B XL	- 6,3-6,6 0,9-1,1 max. 4,3 1,8-2,4 20,2-22,2 13,0-16,4
switch-off	1900	0			
Idle stop	350 400 450 400 500	(17,5-26,5) 7,5-12,5 (5,5-14,5) max. 3 min. 49 max. 44		Observations: Manifold-pressure compensator stroke = 4,0 mm.	
2.4 Solenoid	max. cut-in voltage rated voltage	xxx min. 10,0 V 12V		* Correction at the adjusting nut. (46) * operating	stroke (KSB)

⑥ **Test Specifications**
Distributor-type
Fuel-injection Pumps

46

WPP 001/4 Ope 1,6 d

3. Edition

En

VE 4/9 F 2300 R 82

0 460 494 071

supersedes 12.82
 company: Opel
 engine: 2033-1,6 l

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/..

Pre-stroke setting - mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,1-3,5	mm	
1.2 Supply pump pressure	1500	5,0-5,6	bar (kgf/cm²)	
1.3 Full-load delivery without charge-air pressure	1500	28,5-29,5	cm³/1000 strokes	2,5
Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes	
1.4 Idle speed regulation	450	6,0-10,0	cm³/1000 strokes	
1.5 Start	100	min. 40,0	cm³/1000 strokes	2,5
1.6 Full-load speed regulation	2640	17,0-23,0	cm³/1000 strokes	
1.7 Load-dependent start of delivery	1500	-		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1200 1,4-2,2(1,1-2,5)	1500 (2,6-4,0)	2300 6,8-7,6(6,5-7,9)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,4-3,0		2300 7,3-7,9
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		2300 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min.	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	3000 2800 2640 2300 1500 600	max. 5,0 7,0-13,0 (16,0-24,0) 27,4-29,4 (26,1-30,7) (26,7-31,3) 23,2-26,2 (21,7-27,7)		K KF MS SVS * FH	3,2-3,4 5,7-5,9 1,2-1,4 max.2,0 1,8-2,4
switch-off	2300	0		AXK BXL	24,2-26,2 9,9-13,2
Idle stop	1200 650 450	0 2,0-7,0 (0,5-8,5) (4,0-12,0)			
End stop	400 500	min. 30 max. 28			
2.4 Solenoid	max. cut-in voltage xxx max. cut-off voltage xxx	min. 10 V rated voltage 12V		Observations * *operating stroke (KSB)	

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⑥ **Test Specifications**
Distributor-type
Fuel-injection Pumps

En

46

WPP 001/4 Ope 1,6 d 1

1. Edition

VE 4/9 F 2300 R 82-1
 0 460 494 114

supersedes -
 company: Opel
 engine: 2033-1,6 L

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

TestOil-ISO 4113

Pre-stroke setting - mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,1-3,5 mm		
1.2 Supply pump pressure	1500	5,0-5,6 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure Full-load delivery with charge-air pressure	1500 -	28,5-29,5 cm³/1000 strokes cm³/1000 strokes		2,5
1.4 Idle speed regulation	450	6,0-10,0 cm³/1000 strokes		
1.5 Start	100	min. 40,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2640	17,0-23,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	1500	-		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1200 1,4-2,2(1,1-2,5)	1500 (2,6-4,0)	2300 6,8-7,6(6,5-7,9)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,4-3,0		2300 7,3-7,9
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		2300 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	3000 2800 2640 2300 1500 600	max. 5,0 7,0-13,0 (6,0-14,0) (16,0-24,0) 27,4-29,4 (26,1-30,7) (26,7-31,3) 23,2-26,2 (21,7-27,7)		K KF MS SVS * FH	3,2-3,4 5,7-5,9 1,2-1,4 max. 2,0 1,8-2,4
switch-off	2300	0		A XK B XL	24,2-26,2 9,9-13,2
Idle stop	1200 650 450	0 2,0-7,0 (0,5-8,5) (4,0-12,0)		Observations *operating stroke (KSB)	
End stop	400 500	min. 30 max. 28			
2.4 Solenoid	max. cut-in voltage 12V	xxx min. 10,0 V rated voltage 12V			

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VMA
2. Edition

En

VE 5/11 F 2150 L 101
0 460 415 003

supersedes
company: VM-Cento
engine: HR 588 HT

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment
see VDT-W-450.

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

TestOil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1800	5,9-6,3 mm	0,8	
1.2 Supply pump pressure	1800	6,3-6,9 bar (kgf/cm²)	0,8	
1.3 Full-load delivery without charge-air pressure	600	33,0-36,0 cm³/1000 strokes	0	3,5
Full-load delivery with charge-air pressure	2000	38,0-39,0 cm³/1000 strokes	0,8	
1.4 Idle speed regulation	400	9,0-13,0 cm³/1000 strokes	0	3,0
1.5 Start	100	min. 50,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	2400	11,5-17,5 cm³/1000 strokes	0,8	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA=0,8 bar	n = rev/min min:	1000 1,6-2,4(1,3-2,7)	1500 4,5-5,1(4,1-5,5)	1800 (5,4-6,8)7,5-8,1(7,1-8,5)	2150
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm²)	600 2,3-2,9			2150 7,5-8,1
Overflow delivery	n = rev/min cm³/10 s	600 55-138(40-153)			2150 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	Dimensions for assembly and adjustment mm
End stop	2450 2400 2150 2000 1500 *700 600	3,0-9,0 (1,5-10,5) (10,0-19,0) 35,7-38,3 (32,5-41,5) (35,8-41,2) 42,7-45,3 (40,8-46,2) 40,5-43,5 (38,6-45,4) (31,1-37,9)	0,8 0,8 0,8 0,8 0,8 0,3 0	K KF MS SVS **FH	- 5,9-6,1 0,9-1,1 3,0 1,8-2,4
switch-off	2150	0		A XK B XL	20,2-22,2 9,7-13,1
idle stop	800 400	max. 3,0 (6,5-15,5)			
2.4 Solenoid	Max. cut-in voltage test voltage	xxx	min. 10,0 V		Observations Manifold-pressure compensator stroke = 4,5 mm Correction at the adjusting nut. (46) *operating stroke (KSB)
			rated voltage 12V		

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9.83

L9

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 IHC 6,6i

2. Edition

En

VE 6/12 F 1100 R 102

0 460 426 025

DHK 1 688 901 020
172 + 3 bar

Overflow temperature 45° C

supersedes -
company: IHC
engine: DT 402

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm ±0,02(0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	600	3,2-3,6 mm	0,75	
1.2 Supply pump pressure	600	5,0-5,6 bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	81,0-83,0 cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	800	99,0-100,0 cm³/1000 strokes	0,75	3,5
1.4 Idle speed regulation	375	20,0-26,0 cm³/1000 strokes	0	
1.5 Start	100	min. 95,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	1200	33,0-39,0 cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA=0,75 bar	n = rev/min mm	400 1,3-2,1(1,0-2,4)	600 (2,7-4,1)	700 3,6-4,4(3,3-4,7)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	400 3,9-4,5		1100 7,0-7,6
Overflow delivery	n = rev/min cm³/10 s	500 55-125(40-140)		1100 55-125(40-140)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation
End stop	1220-1280 1200 1080 800 600 *600	0 96,0-99,0 (31,0-41,0) (94,5-100,5) (96,5-102,5) 88,5-90,5 (85,7-93,3) (78,2-85,8)	0,75 0,75 0,75 0,75 0,2 0	K KF MS SVS
switch-off	1100	0		XK XL
Idle stop	420-500 375	0 (18,0-28,0)		
End stop	200 440	min. 95 max. 85		
2.4 Solenoid	max. cut-in voltage XXX	min. 10,0 V rated voltage 12V.		Observations * Manifold-pressure compensator stroke = 4,0 mm. Correction at the adjusting nut.(46)

Testoil ISO 4113

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⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VOL 3,6 o

1. Edition

En

VE 4/11 F 1900 L 108

0 460 414 004

supersedes-
company: Volvo Penta
engine: TMD 8199 - 90 PS - "B"

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment
see VDT-W-460V..

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1700	4,8-5,2 mm		
1.2 Supply pump pressure	1700	6,4-7,0 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	54,0-55,0 cm³/1000 strokes		3,5
Full-load delivery with charge-air pressure	-	cm³/1000 strokes		
1.4 Idle speed regulation	325	26,0-30,0 cm³/1000 strokes		3,5
1.5 Start	100	min. 60 cm³/1000 strokes		
1.6 Full-load speed regulation	2000	27,0-32,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,7-2,5(1,4-2,8)	1700 (4,3-5,7)	1870 5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,7-3,3		1870 7,0-7,6
Overflow delivery	n = rev/min cm³/10 s	600 55-138(40-153)		1900 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2180 2100 2000 1870 1500 1000 600	max. 1,0 min. 2,0 49,5-52,5 (48,4-53,6) (51,9-57,1) 54,5-57,5 (53,4-58,6) 45,0-49,0 (43,6-50,4)		K KF MS SVS	- 5,7-5,9 1,2-1,4 3,4
switch-off				A B	
Idle stop	325 400 500	min. 4,0 max. 1,0 (23,5-32,5)		Observations	
End stop	350 500	min. 55 max. 50		Pushing electro-magnet	
2.4 Solenoid	max. cut-in voltage xxx	min. 10 V xxx	rated voltage 12V.		

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L11

8.83

Test Specifications

Distributor-type Fuel-injection Pumps

46

WPP 001/4 Volvo 3,0p

1. Edition

VE 4/11 F 1625 L 110

0 460 414 005

En

supersedes-
company: Volvo-Penta
engine: TAMD 30 A-C

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Pre-stroke setting 0,2 mm $\pm 0,02$ (0,04)

Test Instructions and Test Equipment
see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	2,6-3,0 mm		
1.2 Supply pump pressure	1500	6,2-6,8 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	62,0-63,0 cm³/1000 strokes		3,5
Full-load delivery with charge-air pressure	-	- cm³/1000 strokes		
1.4 Idle speed regulation	325	26,0-30,0 cm³/1000 strokes		3,5
1.5 Start	100	min. 70 cm³/1000 strokes		
1.6 Full-load speed regulation	2000	6,0-14,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery				

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 0,5-1,3(0,2-1,6)	1500 (2,1-3,5)	1625 3,0-3,6(2,6-4,0)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 3,2-3,8		1625 6,6-7,2
Overflow delivery	n = rev/min cm³/10 s	600 55-138(40-153)		1625 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2100 2000 1800 1625 1500 1000 600	max. 2,0 (5,5-14,5) 46,5-52,5 (45,0-54,0) 58,5-61,5 (57,3-62,7) (59,3-65,2) 61,5-63,5 (59,3-65,2) 52,5-56,5 (51,1-57,9)	
switch-off			
Idle stop	325 450 500	max. 3,0 max. 1,0 (23,5-32,5)	
End stop	350 450	min. 70 max. 65	
2.4 Solenoid	max. cut-in voltage XX XXXXXXXX rated voltage 12V.	XX min. 10V	

3. Dimensions

for assembly
and adjustment

Designation mm

K -
KF 5,7-6,0
MS 1,2-1,4
SVS max. 5

A
B

Observations

Pushing electro-magnet

Testoil-ISO 4113

L12

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7.83

Test Specifications Distributor-type Fuel-injection Pumps

VE 4/11 F 1900 L 111

0 460 414 006

En

supersedes -

company: Volvo-Penta

engine: TAMD 8199 B - 110 PS

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Pre-stroke setting 0,2 mm $\pm 0,02(0,04)$

Test Instructions and Test Equipment

see VDT-W-460V..

TestOil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	2,6-3,0	mm	
1.2 Supply pump pressure	1500	6,2-6,8	bar (kgf/cm²)	
1.3 Full-load delivery without charge-air pressure	1000	71,5-72,5	cm³/1000 strokes	3,5
Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes	
1.4 Idle speed regulation	325	26,0-30,0	cm³/1000 strokes	3,5
1.5 Start	≤ 100	min. 80	cm³/1000 strokes	
1.6 Full-load speed regulation	2100	19,0-27,0	cm³/1000 strokes	
1.7 Load-dependent start of delivery				

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 0,5-1,3(0,2-1,6)	1500 (2,1-3,5)	1850 3,6-4,4(3,3-4,7)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 3,2-3,8		1850 7,2-7,8
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		1900 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2200 2100 2000 1850 1000 600	max. 7,0 (18,5-27,5) 42,0-48,0 (40,5-49,5) 70,5-73,5 (69,4-74,6) 64,5-68,5 (63,1-69,9)		K KF MS SVS	- 5,8 1,3 3,4
switch-off				A B	
Idle stop	325 450	max. 3,0 (23,5-32,5)			
End stop	350 450	min. 70 max. 70			
2.4 Solenoid	max. cut-in voltage xxx	min. 10 V xxx	rated voltage 12V.	Observations	

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8.83

L13

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 MAN 5,6i

1. Edition

En

VE 6/12 F 1400 R 120-1
0 460 426 030

supersedes
company: MAN
engine: D0226 MC

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/..

Testoil-ISO 4113

Pre-stroke setting 0,2 mm

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	800	3,5-3,9 mm	0,8	
1.2 Supply pump pressure	800	5,1-5,7 bar (kgf/cm²)	0,8	
1.3 Full-load delivery without charge-air pressure	630	85,5-86,5 cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1000	112,0-113,0 cm³/1000 strokes	0,8	4,0
1.4 Idle speed regulation	300	10,0-16,0 cm³/1000 strokes	0	3,5
1.5 Start	100	min. 70,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	1440	92,0-100,0 cm³/1000 strokes	0,8	
1.7 Load-dependent start of delivery				

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	500 1,2-2,0(0,9-2,3)	800 (3,0-4,4)	1100 4,9-5,7(4,6-6,0)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm²)	500 3,8-4,4		1100 6,1-6,7
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		1400 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	1650 1550 1440 1400 1000 800 630 *630 630	max. 1,0 26,0-34,0 (25,0-35,0) (91,0-101,0) 108,0-112,0 (107,0-113,0) (109,5-115,5) 110,0-114,0 (109,0-115,0) 112,0-116,0 (110,3-117,7) 106,5-107,5 (103,3-110,7) (82,3-89,7)	0,8 0,8 0,8 0,8 0,8 0,8 0,8 0,4 0	K KF MS SVS	- 5,7-6,0 1,0-1,2
switch-off				XK XL	25,0-27,0 13,5-16,8
Idle stop	300 350 400	max. 5,0 max. 1,0	(8,0-18,0)		
End stop	230 400	min. 100 max. 100			
2.4 Solenoid	max. cut-in voltage xxx 10 V xxx rated voltage 12V.			Observations	
				Pulling electro-magnet	

⑥ **Test Specifications**
Distributor-type
Fuel-injection Pumps

46

WPP 001/4 MAN 5,6h

1. Edition

En

VE 6/12 F 1400 R 120-2
 0 460 426 031

supersedes
 company MAN
 engine: D0225 MC

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	800	3,5-3,9 mm	0,8	
1.2 Supply pump pressure	800	5,1-5,7 bar (kgf/cm²)	0,8	
1.3 Full-load delivery without charge-air pressure	630	85,5-86,5 cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1000	112,0-113,0 cm³/1000 strokes	0,8	4,0
1.4 Idle speed regulation	300	10,0-16,0 cm³/1000 strokes	0	3,5
1.5 Start	100	min. 70,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	1440	92,0-100,0 cm³/1000 strokes	0,8	
1.7 Load-dependent start of delivery				

2. Test Specifications checking values in brackets ()

2.1 Timing device LDA = 0,8 bar	n = rev/min mm	500 1,2-2,0(0,9-2,3)	800 (3,0-4,4)	1100 4,9-5,7(4,6-6,0)
2.2 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm²)	500 3,8-4,4		1100 6,1-6,7
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		1400 55-138(40-153)

2.3 Fuel deliveries	Speed control lever	Rot. speed rev/min	Fuel delivery - cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	Dimensions for assembly and adjustment mm
End stop		1650 1550 1440 1400 1000 800 630 * 630 630	max. 1,0 26,0-34,0 (25,0-35,0) (91,0-101,0) 108,0-112,0 (107,0-113,0) (109,5-115,5) 110,0-114,0 (109,0-115,0) 112,0-116,0 (110,3-117,7) 106,5-107,5 (103,3-110,7) (82,3-89,7)	0,8 0,8 0,8 0,8 0,8 0,8 0,8 0,4 0	K KF MS SVS	- 5,7-6,0 1,0-1,2
	switch-off				XK ML	25,0-27,0 13,5-16,8
Idle stop		300 350 400	max. 5,0 max. 1,0	(8,0-18,0)		Observations
End stop		230 400	min. 100 max. 100			Pulling electro-magnet
2.4 Solenoid		max. cut-in voltage XXXXXX XXXX	xxx 20 V rated voltage 12V.			

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 FIA 1,7 h

2. Edition

En

VE 4/10 F 2050 R 124

0 460 404 031

supersedes 1.83
company: Fiat
engine: 8144-81

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers.

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02$ (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	5,3-5,7 mm	0,75	
1.2 Supply pump pressure	1500	6,1-6,7 bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	43,5-44,5 cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1500	61,5-62,5 cm³/1000 strokes	0,75	3,0
1.4 Idle speed regulation	350	12,5-16,5 cm³/1000 strokes	0	3,0
1.5 Start	100	min. 60 cm³/1000 strokes	0	
1.6 Full-load speed regulation	2130	40,0-46,0 cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery	1500	-		

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	600 (0 bar) 0,9-1,7 (0,6-2,0)	1500 (0,75 bar) 2050 (0,75 bar) (4,8-6,2) 7,4-8,2 (7,1-8,5)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 (0 bar) 3,4-4,0	600 (0 bar) 2050 (0,75 bar) 4,0-4,6 7,4-8,0
Overflow delivery	n = rev/min cm³/10 s	600 55-138 (40-153)	2050 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2400 2300 2130 2030 1500 *800 600	max. 1,5 max. 15,0 (38,5-47,5) 53,1-56,1 (51,9-57,3) (59,3-64,7) 53,5-54,5 (50,6-57,4) (40,6-47,4)	0,75 0,75 0,75 0,75 0,75 0,2 0	K KF MS SVS	- 5,7-6,0 1,2-1,4 3,2
switch-off	2050	0		A XK B XL	25,0-27,0 9,8-13,1
Idle stop	350 450 500	(10,0-19,0) max. 3,5 max. 2,0			
End stop	350 450	min. 55 max. 55			
2.4 Solenoid	max. cut-in voltage XXXXXX rest voltage	XXX min. 10 V rated voltage 12V.		Observations	

*Manifold-pressure compensator stroke = 3,8 mm
Correction at the adjusting nut (46).

Testoil-ISO 4113

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,0 i 1

1. Edition

En

VE 5/10 F 2250 L 133

0 460 405 031

supersedes

company: VWW

engine: 153 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers.

Test Instructions and Test Equipment

Pre-stroke setting 0,2 mm $\pm 0,02$ (0,04)

see VDT-W-480/..

Testoil ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,1-3,5 mm	0,75 bar	
1.2 Supply pump pressure	1500	5,5-6,1 bar (kgf/cm²)	0,75 bar	
1.3 Full-load delivery without charge-air pressure	500	21,5-22,5 cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1500	43,5-44,5 cm³/1000 strokes	0,75 bar	2,5
1.4 Idle speed regulation	375	6,0-10,0 cm³/1000 strokes	0	2,0
1.5 Start	100	min. 50,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0-15,0 cm³/1000 strokes	0,75 bar	
1.7 Load-dependent start of delivery				

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA: 0,75 bar	n = rev/min mm	850 1,1-1,9(0,8-2,2)	1500 (2,6-4,0)	2250 5,4-6,2(5,1-6,5)
2.2 Supply pump LDA: 0,75 bar	n = rev/min bar (kgf/cm²)	500 3,2-3,8		2250 7,3-7,9
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)		2250 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2700 2525 2250 1500 * 850 500	max. 3,0 (8,0-16,0) 37,0-39,0 (35,8-40,2) (41,8-46,2) 32,5-33,5 (30,8-35,2) (19,0-25,0)	0,75 bar 0,75 bar 0,75 bar 0,75 bar 0,3 bar 0	K KF MS SVS	- 5,7-6,0 1,7-1,9 4,2
switch-off elektr.	400	0		A B	
idle stop	375 400 **1125	max. 3,0 (4,0-12,0)			Observations
End stop	400 500	19,5-23,5 min. 18,0 max. 25,0			Adjust TAS only at full LDA pressure of 0,75 bar. Adjust EGR with gauge. Manifold-pressure compensator stroke = 3,6mm Correction at the adjusting nut. (46).
2.4 Solenoid	max. cut-in voltage XXXXXX XXXX	XXX min. 10 V XXXXXX XXXX rated voltage 12V.			

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L17

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Test Specifications

Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 2,0 i

1. Edition

En

VE 5/10 F 2250 L 133-1

0 460 405 029

supersedes
company/VWW
engine: 153 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment



Pre-stroke setting 0,2 mm \pm 0,02 (0,04)

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,1-3,5 mm	0,75 bar	
1.2 Supply pump pressure	1500	5,5-6,1 bar (kgf/cm²)	0,75 bar	
1.3 Full-load delivery without charge-air pressure	500	21,5-22,5 cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1500	43,5-44,5 cm³/1000 strokes	0,75 bar	2,5
1.4 Idle speed regulation	375	6,0-10,0 cm³/1000 strokes	0	2,0
1.5 Start	± 100	min. 50,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0-15,0 cm³/1000 strokes	0,75 bar	
1.7 Load-dependent start of delivery				

2. Test Specifications checking values in brackets ()

2.1 Timing device LDA=0,75bar	n = rev/min mm	850 1500 1,1-1,9(0,8-2,2) (2,6-4,0)	2250 5,4-6,2(5,1-6,5)
2.2 Supply pump LDA=0,75bar	n = rev/min bar (kgf/cm²)	500 3,2-3,8	2250 7,3-7,9
Overflow delivery	n = rev/min cm³/10 s	500 55-138 (40-153)	2250 55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2700 2525 2250 1500 * 800 500	max. 3,0 (8,0-16,0) 37,0-39,0 (35,8-40,2) (41,8-46,2) 32,5-33,5 (30,8-35,2) (19,0-25,0)	0,75 bar 0,75 bar 0,75 bar 0,75 bar 0,3 bar 0	K KF MS SVS	- 5,7-6,0 1,7-1,9 4,2
switch-off mech. elektr.	2250 400	0 0		A B	
Idle stop	375 450	max. 3,0 (4,0-12,0)			
End stop	400 500	min. 18,0 max. 25,0			
2.4 Solenoid	max. cut-in voltage XXXX min. 10 V XXXXXX XXXX rated voltage 12V.			Observations	
				Adjust TAS only at full LDA pressure of 0,75 bar Manifold-pressure compensator stroke = 3,6mm Correction at the adjusting nut (46).	

Test Specifications

Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 1,6 V 5

1. Edition

En

VE 4/9 F 2250 R 134-1
0 460 494 134

supersedes -
company: VWW
engine: 086 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

mm

see VDT-W-460/..

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,3 - 3,7 mm	0,75 bar	
1.2 Supply pump pressure	1500	5,5 - 6,1 bar (kgf/cm²)	0,75 bar	
1.3 Full-load delivery without charge-air pressure	600	22,5 - 23,5 cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1500	42,5 - 43,5 cm³/1000 strokes	0,75 bar	2,5
1.4 Idle speed regulation	450	6,0 - 10,0 cm³/1000 strokes	0	2,0
1.5 Start	100	min. 35,0 cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0 cm³/1000 strokes	0,75 bar	
1.7 Load-dependent start of delivery	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device LDA = 0,75bar	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,8-4,2)	2250 6,0-6,8(5,7-7,1)
2.2 Supply pump LDA = 0,75bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9		2250 7,4-8,0
Overflow delivery	n = rev/min cm³/10 s	600 55-138(40-153)		2250 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	Dimensions for assembly and adjustment mm
End stop	2750 2525 2250 1500 1000 600	max. 3,0 (8,0-16,0) 38,0-40,0 (36,8-41,2) (40,8-45,2) 32,5-33,5 (30,8-35,2) (20,0-26,0)	0,75 bar 0,75 bar 0,75 bar 0,75 bar 0,3 bar 0	K KF MS SVS	3,2-3,4 5,7-6,0 1,2-1,4 5,7
switch-off mech. elektr.	2250 400	0 0		A B	
Idle stop	450 1200	(4,0-12,0) max. 9,0			
End stop	400 500	min. 21,0 max. 29,0			
2.4 Solenoid	max. cut-in voltage test voltage	XXX min. 10,0 V XXXXXX rated voltage 12V		Observations * Manifold-pressure compensator stroke = 4,0 mm. Correction at the adjusting nut.(46)	

Testoil-ISO 4113

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 1,6 V 6
1. Edition

En

VE 4/9 F 2250 R 134-2

0 460 494 135

supersedes
company: VWW
engine: 086 T

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/..

Testoil-ISO 4113

Pre-stroke setting	-	mm	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1. Settings					
1.1 Timing device travel	1500	3,3 - 3,7	mm	0,75 bar	
1.2 Supply pump pressure	1500	5,5 - 6,1	bar (kgf/cm²)	0,75	
1.3 Full-load delivery without charge-air pressure	600	22,5 - 23,5	cm³/1000 strokes	0	
Full-load delivery with charge-air pressure	1500	42,5 - 43,5	cm³/1000 strokes	0,75	2,5
1.4 Idle speed regulation	475	6,0 - 10,0	cm³/1000 strokes	0	2,0
1.5 Start	100	min. 35,0	cm³/1000 strokes	0	
1.6 Full-load speed regulation	2525	9,0 - 15,0	cm³/1000 strokes	0,75	
1.7 Load-dependent start of delivery	-				

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1500 (2,8-4,2)	2250 6,0-6,8(5,7-7,1)
2.2 Supply pump LDA = 0,75bar	n = rev/min bar (kgf/cm²)	600 3,3-3,9		2250 7,4-8,0
Overflow delivery LDA = 0,75bar	n = rev/min cm³/10 s	600 55-138(40-153)		2250 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2750 2525 2250 1500 1000 600	max. 3,0 (8,0-16,0) 38,0-40,0 (36,8-41,2) (40,8-45,2) 32,5-33,5 (30,8-35,2) (20,0-26,0)	0,75 bar 0,75 bar 0,75 bar 0,75 bar 0,3 bar 0	K KF MS SVS	3,2-3,4 5,7-6,0 1,2-1,4 3,2
switch-off elect.	400	0		A B	
Idle stop	475 1200	(4,0-12,0) max. 4,0			
End stop	400 500	min. 21,0 max. 29,0			
2.4 Solenoid	max. cut-in voltage 1000-1200-1300-1400-1500 rated voltage 12V	XXX min. 10,0 V		Observations Manifold-pressure compensator stroke = 4,0 mm. Correction at the adjusting nut.(46)	

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L20

L20

⑥ Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 1,6 W 1

1. Edition

En

VE 4/9 F 2400 R 136

0 460 494 130

supersedes -
company: VW
engine: 086

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

- mm

see VDT-W-460/..

Testoil-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	2,4 - 2,8 mm		
1.2 Supply pump pressure	1500	4,9 - 5,5 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1500	31,5 - 32,5 cm³/1000 strokes		2,5
Full-load delivery with charge-air pressure	-	cm³/1000 strokes		
1.4 Idle speed regulation	475	6,0 - 10,0 cm³/1000 strokes		2,0
1.5 Start	100	min. 35,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2600	11,0 - 17,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery	-			

2. Test Specifications

Checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 0,6-1,4(0,3-1,7)	1500 (1,9-3,3)	2400 5,8-6,6(5,5-6,9)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,8-3,4		2400 7,0-7,6
Overflow delivery	n = rev/min cm³/10 s	600 55-138(40-153)		2400 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2800 2600 2400 1500 600	max. 3,0 (10,0-18,0) 27,0-29,0 (25,8-30,2) (29,8-34,2) 19,5-22,5 (18,0-24,0)		K KF MS SVS *FH	3,2-3,4 5,7-6,0 1,3-1,5 3,4 1,8-2,4
'switch-off' elect.	400	0		A B	
Idle stop	475 650 1200	(4,0-12,0) max. 6,0 max. 5,0			
End stop	400 500	min. 16,0 max. 21,5			
2.4 Solenoid	max. cut-in voltage XXX	min. 10,0 V		Observations	
	rated voltage 12V.			*operating stroke (KSB)	

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,0 i 3

1. Edition

VE 5/10 F 2400 L 137

0 460 405 030

En

supersedes -

company: VW

engine: 153

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers.

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm \pm 0,02 (0,04)

see VDT-W-1501

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	2,4-2,8	mm	
1.2 Supply pump pressure	1400	5,0-5,6	bar (kgf/cm ²)	
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0	cm ³ /1000 strokes	2,5
Full-load delivery with charge-air pressure	-		cm ³ /1000 strokes	
1.4 Idle speed regulation	375	6,0-10,0	cm ³ /1000 strokes	2,0
1.5 Start	100	min. 50,0	cm ³ /1000 strokes	
1.6 Full-load speed regulation	2650	6,0-12,0	cm ³ /1000 strokes	
1.7 Load-dependent start of delivery	-			

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm ²)	500 2,8-3,4		2400 7,5-8,1
Overflow delivery	n = rev/min cm ³ /10 s	500 55-138(40-153)		2400 55-138(40-153)

2.3 Fuel deliveries				3. Dimensions for assembly and adjustment mm	
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm ²)	Designation	
End stop	2800	max. 3,0		K	-
	2650	(5,0-13,0)		KF	5,7-6,0
	2400	29,5-31,5	(28,3-32,7)	MS	1,7-1,9
	1400		(33,3-37,7)	SVS	2,8
	750	24,5-27,5	(23,0-29,0)		
switch-off mech.	2400	0		A	
elektr.	400	0		B	
Idle stop	375		(4,0-12,0)	Observations	
	450	max. 3,0			
End stop	400	min. 16,0			
	500	max. 23,0			

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Geschäftsbericht KH Kundenservice Kfz-Auslieferung

Geschäftsbereich KH, Kundenservice, KfZ-Ausrüstung
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Test Specifications

Distributor-type Fuel-injection Pumps

46

WPP 001/4 VW 2,0 i 2

1. Edition

En

VE 5/10 F 2400 L 137-1

0 460 405 032

supersedes
company: VW
engine: 153

Overflow temperature 45° C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting 0,14 mm $\pm 0,02$ (0,04)

see VDT-W-460/..

Testo II-ISO 4113

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	2,4-2,8 mm		
1.2 Supply pump pressure	1400	5,0-5,6 bar (kgf/cm²)		
1.3 Full-load delivery without charge-air pressure	1400	35,0-36,0 cm³/1000 strokes		2,5
Full-load delivery with charge-air pressure	-	cm³/1000 strokes		
1.4 Idle speed regulation	375	6,0-10,0 cm³/1000 strokes		2,0
1.5 Start	100	min. 50,0 cm³/1000 strokes		
1.6 Full-load speed regulation	2650	6,0-12,0 cm³/1000 strokes		
1.7 Load-dependent start of delivery				

2. Test Specifications checking values in brackets ()

2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	500 2,8 -3,4		2400 7,5-8,1
Overflow delivery	n = rev/min cm³/10 s	500 55-138 (40-153)		2400 55-138 (40- 153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	for assembly and adjustment mm
End stop	2800 2650 2400 1400 750	max. 3,0 (5,0-13,0) 29,5-31,5 (28,3-32,7) (33,3-37,7) 24,5-27,5 (23,0-29,0)		K KF MS SVS	- 5,7-6,0 1,7-1,9 2,8
switch-off mech. elektr.	2400 400	0 0		A B	
Idle stop	375 450		(4,0-12,0)		
End stop	400 500	max. 3,0 min. 16,0 max. 23,0			
2.4 Solenoid	max. cut-in voltage XXXXX	xxx min. 10,0 V XXXXX rated voltage 12V.		Observations	